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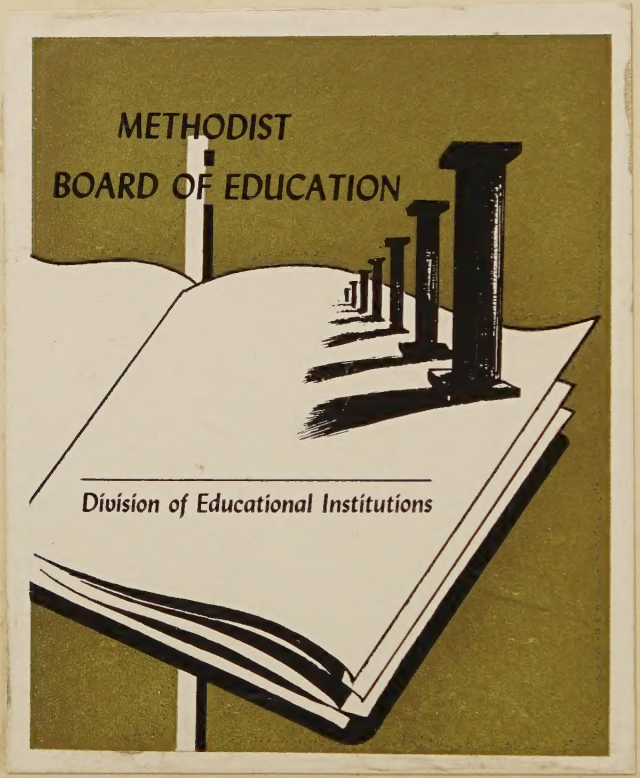
METHODIST
BOARD OF EDUCATION
Division of Educational Institutions

UNITED STATES DEPARTMENT OF THE INTERIOR
RAY LYMAN WILBUR, Secretary
OFFICE OF EDUCATION
WILLIAM JOHN COOPER, Commissioner

BULLETIN, 1930, No. 9

SURVEY OF LAND-GRANT COLLEGES AND UNIVERSITIES

Directed by

ARTHUR J. KLEIN, Chief
DIVISION OF COLLEGIATE AND PROFESSIONAL EDUCATION
OFFICE OF EDUCATION

IN TWO VOLUMES
Volume I

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LETTER OF TRANSMITTAL

DEPARTMENT OF THE INTERIOR,
OFFICE OF EDUCATION,
Washington, D. C., August 22, 1930.

SIR: At the request of the Association of Land-Grant Colleges and Universities, the Office of Education undertook July 1, 1927, a survey of the 69 land-grant colleges and universities, including 17 institutions for negroes. The survey was completed June 30, 1930. The expense of the survey was defrayed by Congress which appropriated $117,000 for the purpose.

For more than a half century these institutions have grown in importance as vital factors in the agricultural, industrial, and educational progress of the Nation. However, in view of the great changes that have come in the economic and social life of our country it became highly desirable to make a critical study of the achievements of these schools and to reappraise on a scientific basis their objectives and functions.

The survey provides basic data and information which can be used by these institutions and by the States in making adjustments that are necessary to develop a more effective educational program, and to render increasing service to the social and economic life of the Nation.

In order to promote the welfare of these schools and to assist the public in more fully understanding their contributions to society, I recommend the publication of this survey report as a bulletin of the Office of Education.

Respectfully submitted,

WILLIAM JOHN COOPER,
Commissioner.

The SECRETARY OF THE INTERIOR.

PREFACE

It is the purpose of this introduction, first, to describe the circumstances under which the United States Office of Education[1] undertook to survey the land-grant colleges and universities of the United States; second, to indicate the purposes for which the survey was undertaken; third, to characterize the attitudes that have controlled during its conduct; fourth, to describe the methods followed and the organization developed for the prosecution of the survey; fifth, to acknowledge the voluntary assistance rendered by institutions, individuals, and organizations, and to list the survey staff; and sixth, to describe briefly the form and scope of this report, and to call attention to the wealth of material assembled that will repay further study.

In the spring of 1926, through its executive committee, the Association of Land-Grant Colleges and Universities, upon the advice of the Secretary of Agriculture, invited the cooperation and suggestions of the Office of Education with reference to a survey of the land-grant colleges and universities of the United States. This undertaking did not originate in the Office of Education nor in any other office of the Federal Government. The presidents of the land-grant colleges had been discussing such a survey for some years.

On April 22, 1926, Dr. John J. Tigert, then Commissioner of Education, wrote to the chairman of the executive committee of the Association of Land-Grant Colleges and Universities that the Office of Education "would not care to enter into any arrangement to participate in such a survey except upon the basis that the Office of Education be in charge and direct the work. The importance of the task, the conflicting factors involved, and the necessity that the survey agency be free from any possibility of the charge of undue interest, make this an essential consideration."

Under these conditions the executive committee on May 21, 1926, extended a formal invitation to the Office of Education to undertake the survey. In the letter it was stated:

> The time has come when the colleges themselves feel that there should be a national study of these agencies, with a view to determine how well they are fulfilling the purposes for which they were established and what changes

[1] The name of the Bureau of Education was changed to Office of Education in October, 1929, by order of the Secretary of the Interior.

or modifications, if any, are necessary in order to enable them to meet more effectively the new situations that are arising. We feel that such a study is a national problem, having to do with the work in all of the States, and that the investigation should, therefore, be headed by a national agency, and the natural agency for the study is the Office of Education.

I have taken the matter up with the members of the executive committee and I am now, on behalf of that committee, officially requesting you to make provision for such a study.

I can assure you that the executive committee, as well as the colleges themselves, will give every possible cooperation in this study and I am certain from it will result policies that will be of great value in the future development of these colleges in their relationship to our agricultural and industrial life.

On May 25, 1926, the Commissioner of Education, with the approval of the Secretary of the Interior, formally accepted the invitation of the Association of Land-Grant Colleges and Universities to undertake the study. The Secretary of the Interior, Hubert Work, presented the matter to President Coolidge. The President gave his approval and authorized the Director of the Bureau of the Budget to include an item for the study in the estimates for the fiscal year beginning July 1, 1927.

When the project was submitted to the Congress during the hearings on the appropriations for the Office of Education, Department of the Interior, Congress gave assent immediately, with the result that an item of $117,000 was included in the appropriation to enable the Secretary of the Interior, through the office of Education, "to make a study of the organization, administration, and work of the land-grant institutions," $61,000 being available in the fiscal year beginning July 1, 1927.

It was contemplated in the beginning that the study would require two years. After the work was under way it became evident that a longer period would be required. Without increasing the total appropriation of $117,000, the unexpended balances of preceding years were made available for continuation of the study in the third year.

The following statement issued by Commissioner John J. Tigert on November 18, 1927, defines the purposes and attitudes of the Office of Education in undertaking the survey:

(1) The Bureau of Education regards the survey as a National study of the accomplishments, the present status, and the future objectives of the land-grant type of education, and not a collection of surveys of individual institutions.

(2) The bureau feels that the success of the survey depends largely upon the impartiality and thoroughness with which it may discover facts and make constructive recommendations. Therefore, it will be the policy of the bureau to maintain entire control of the work and assume responsibility for the report. At the same time, it is planned to utilize to the fullest extent all of the groups, agencies, and individuals who are now organized to carry on and promote the

interests of special aspects of land-grant college education. The leaders and the rank and file of land-grant college education will be freely consulted and given opportunity to express opinions. Close contact will be maintained with the services in the Department of Agriculture which articulate with the land-grant colleges. The bureau's staff will be obtained in large part from those engaged in administration and instruction in the land-grant colleges.

(3) In the broadest sense, the functions of the land-grant colleges, as defined by the Morrill Act and as developed during their past history, are regarded by the Bureau of Education to be public and democratic in nature, with ideals, practical purposes, and objectives which are worthy of full recognition in the field of higher education.

Under the general direction of the Commissioner of Education, Arthur J. Klein, Chief of the Division of Higher Education, was placed in immediate charge of the survey, and a National Advisory Committee was designated as follows:

The Secretary of the Interior, chairman.

The Secretary of Agriculture.

President R. A. Pearson, of the University of Maryland, College Park, Md., representing the Association of Land-Grant Colleges and Universities.

President R. S. Wilkinson, of the State Agricultural and Mechanical College, Orangeburg, S. C., representing the Conference of Negro Land-Grant College Presidents.

State Superintendent of Public Instruction of Illinois, Francis G. Blair, Springfield, Ill.

President L. D. Coffman, of the University of Minnesota, Minneapolis, Minn.

President S. W. Stratton, of Massachusetts Institute of Technology, Cambridge, Mass.

President Charles A. Lory, of the State Agricultural College of Colorado, Fort Collins, Colo.

Miss Martha Van Rensselaer, Director of the New York State College of Home Economics, Cornell University, Ithaca, N. Y.

Dean F. B. Mumford, College of Agriculture, University of Missouri, Columbia, Mo.

The National Advisory Committee has performed the following services: It met with the Commissioner of Education and the director of the survey and discussed and approved the plans of procedure submitted by the director of the survey. The sections of the final report as tentatively completed have been submitted to the individual members of the committee for comment and suggestion prior to publication of the report. In addition, individual members of the committee have been consulted by the director of the survey concerning the problems of procedure and policy in the fields with which committee members were especially concerned.

In harmony with the fundamental attitudes it was determined: First, that the study should be a cooperative one and that the funds available should be utilized primarily to direct, coordinate, and release the efforts of individual institutions and cooperating organizations; secondly, that the study should be presented, not from the

standpoint of a collection of surveys of individual institutions, but from the standpoint of the functional lines of interest and activity that run through all or through a large proportion of the institutions.

As a first step in the definition of the problems that concern the entire group of institutions and of the functional fields that would need to be covered by the survey, the director of the survey visited 38 of the land-grant institutions. At each of the institutions he met as a group faculty councils, deans of schools and colleges, and such other members of the staff as the president desired. The general problem of the survey was presented and an opportunity given for questions and suggestions. Appointments were then made with individual members of the staff, and at these individual conferences two questions were propounded:

First. What problems in the field of interest of the person being interviewed he would like to have the survey consider; and secondly, who in his field in the United States was best qualified to assist in the undertaking? Individual conferences lasting from one to three hours each were thus held with approximately 700 presidents, deans, directors, professors, and members of the administrative staffs of the land-grant colleges and universities. Notes were made listing the problems suggested by individuals and the personnel recommended for prosecution of the work. The problems suggested were then classified and grouped in accordance with the fields of interest that indicated substantial unity of concern. Upon the basis of suggestions concerning the personnel to assist in the survey, frequency tables for each field were constructed. From these tables it was possible to reach conclusions concerning the specialists in each field who would command the largest degree of confidence of the workers in that field. This preliminary study served to define the problems that would need to be considered and to determine the personnel that should be called in to assist upon the survey.

Final analysis of the problems resulted in a classification under the following general heads:

1. Control and administrative organization.
2. Business management and finance.
3. Work of the registrar.
4. Alumni and former students.
5. Student relations and welfare.
6. Staff.
7. Library.
8. Agriculture.
9. Engineering.
10. Home economics.
11. Arts and sciences.

12. Commerce and business.
13. Teacher training.
14. Military education.
15. Professional veterinary medicine.
16. Summer session.
17. Extension services.
18. Research work.
19. Graduate work.

The next step in the development of the survey work was obviously the planning of the inquiry in each of these fields. The general problems had been defined and a desirable personnel for the work indicated. It was obvious that it would be impossible with the money available to set up field staffs in each of these lines of interest and carry on the study by having each such group visit all the land-grant institutions in the United States. It was, therefore, determined to prepare questionnaire schedules and to divide the field work. Accordingly, advisory committees upon subject matter and functional fields were selected and organized by the Commissioner of Education largely from the personnel of the land-grant colleges upon the recommendation of the national technical groups concerned. It was the policy to consult the appropriate committee in the preparation of the questionnaire in each technical field, and the members of the committee were given an opportunity to review the tentative questionnaire after it was prepared. In addition, these committees have reviewed the tentative reports pertaining to their fields prior to review by the National Advisory Committee. The following advisory committees were designated:

ADVISORY COMMITTEE ON EXTENSION

P. H. Ross, Director of Extension Service, University of Arizona, Tucson.
A. J. Meyer, Director, Agricultural Extension Service, University of Missouri, Columbia, Mo.
J. R. Hutcheson, Director, Agricultural Extension Division, Virginia Polytechnic Institute, Blacksburg, Va.
Paul V. Maris, Director of Extension Service, Oregon Agricultural College, Corvallis, Oreg.
M. S. McDowell, Director, Agricultural Extension, Pennsylvania State College, State College, Pa.
L. N. Duncan, Director of Extension, Alabama Polytechnic Institute, Auburn, Ala.

ADVISORY COMMITTEE ON HOME ECONOMICS

Ava B. Milan, Dean, School of Home Economics, Oregon Agricultural College, Corvallis, Oreg.
Jean Krueger, Dean, Division of Home Economics, Michigan State College, East Lansing, Mich.
Margaret M. Justin, Dean of Division of Home Economics, Kansas State Agricultural College, Manhattan, Kans.

Mabel Campbell, Chairman, Department of Home Economics, University of Missouri, Columbia, Mo.
Mrs. Kathryn G. Burns, Assistant Professor of Home Economics and State Leader of Home Economics Extension, University of Illinois, Urbana, Ill.
Jessie Harris, Professor of Home Economics, University of Tennessee, Knoxville, Tenn.
Mary E. Creswell, Director of Home Economics, Georgia State College of Agriculture, Athens, Ga.

ADVISORY COMMITTEE ON AGRICULTURAL EDUCATION

E. M. Freeman, Dean, College of Agriculture, University of Minnesota, Minneapolis, Minn.
John A. James, Assistant Dean of the College of Agriculture, University of Wisconsin, Madison, Wis.
Alfred Vivian, Dean, College of Agriculture, Ohio State University, Columbus, Ohio.

ADVISORY COMMITTEE ON VOCATIONAL EDUCATION

Rolland M. Stewart, Professor of Rural Education, New York State College of Agriculture, Ithaca, N. Y.
Mabel V. Campbell, Professor of Home Economics, University of Missouri, Columbia, Mo.
Mildred W. Wood, State Director, Vocational Home Economics, State Department of Education, Phoenix, Ariz.
Paul W. Chapman, State Director of Vocational Education, Georgia State College of Agriculture, Athens, Ga.
Kenneth G. Smith, Supervisor of Industrial Education, State Department of Education, Lansing, Mich.
Charles B. Gentry, Dean, Division of Teacher Training, Connecticut Agricultural College, Storrs, Conn.

ADVISORY COMMITTEE ON PROFESSIONAL EDUCATION OF TEACHERS

John O. Creager, Dean of the College of Education, University of Arkansas, Fayetteville, Ark.
George F. Arps, Dean of the College of Education, Ohio State University, Columbus, Ohio.
Jasper N. Deahl, Professor of Education, West Virginia University, Morgantown, W. Va.
W. S. Small, Dean of the College of Education, University of Maryland, College Park, Md.
William A. Wilkinson, Professor of Education, University of Delaware, Newark, Del.
Thomas J. Woofter, Dean of the Peabody School of Education, University of Georgia, Athens, Ga.
Edwin L. Holton, Professor and Head of Department of Education, Kansas State Agricultural College, Manhattan, Kans.

AGRICULTURAL RESEARCH AND EXPERIMENT STATION WORK

L. E. Call, Director, Agricultural Experiment Station, Kansas State Agricultural College, Manhattan, Kans.
Marion J. Funchess, Dean, College of Agriculture and Director of Experiment Station, Alabama Polytechnic Institute, Auburn, Ala.

Henry W. Barre, Director of Research, Experiment Station, Clemson Agricultural College, Clemson College, S. C.
W. C. Coffey, Dean, Department of Agriculture, University of Minnesota, University Farm, St. Paul, Minn.
R. W. Thatcher, President, Massachusetts Agricultural College, Amherst, Mass.

AGENCIES OF STATE AND SUPERIOR CONTROL

John Callahan, Regent, University of Wisconsin, Madison, Wis.
Junius E. Beal, Regent, University of Michigan, Ann Arbor, Mich.
William S. Myers, Trustee, Rutgers University, New Brunswick, N. J.
David E. Ross, Trustee, Purdue University, Lafayette, Ind.
Alma W. Paterson, Trustee, Ohio State University, Columbus, Ohio.

ADVISORY COMMITTEE ON STUDENT RELATIONS AND WELFARE

Edward E. Nicholson, Dean, University of Minnesota, Minneapolis, Minn.
Harold S. Boardman, President, University of Maine, Orono, Me.
David H. Henry, Clemson Agricultural College, Clemson College, S. C.
F. Louise Nardin, Dean, University of Wisconsin, Madison, Wis.
Annie M. Fertig, Dean, State College of Washington, Pullman, Wash.
Scott H. Goodnight, Dean, University of Wisconsin, Madison, Wis.
Harry L. Kent, President, New Mexico College of Agriculture and Mechanic Arts, State College, N. Mex.
Lucy Stebbins, Dean, University of California, Berkeley, Calif.
Anne D. Blitz, Dean, University of Minnesota, Minneapolis, Minn.
Una B. Herrick, Dean, Montana State College of Agriculture and Mechanic Arts, Bozeman, Mont.

ADVISORY COMMITTEE ON NEGRO LAND-GRANT COLLEGES

B. F. Hubert, President, Georgia State Industrial College, Savannah, Ga.
John M. Gandy, President, Virginia Normal and Industrial Institute, Ettrick, Va.
J. S. Clark, President, Southern University and Agricultural and Mechanical College, Scotlandville, La.
Elizabeth C. May, Head of the Department of Home Economics, Prairie View State Normal and Industrial College, Prairie View, Tex.
John W. Davis, President, West Virginia Colored Institute, Institute, W. Va.
J. R. E. Lee, President, Florida Agricultural and Mechanical College, Tallahassee, Fla.

ADVISORY COMMITTEE ON ARTS AND SCIENCE

Charles W. Stoddart, Dean of the School of Liberal Arts, Pennsylvania State College, State College, Pa.
Clarence H. McElroy, Dean of the School of Science and Literature, Oklahoma Agricultural and Mechanical College, Stillwater, Okla.
Fitz-John Weddell, Dean of the Academic School, Mississippi Agricultural and Mechanical College, Agricultural College, Miss.
Arthur H. Saxer, Dean of Schools of Arts and Science and Education, Agricultural College of Utah, Logan, Utah.
Edward H. Ryder, Dean Division of Liberal Arts, Michigan State College of Agriculture and Applied Science, East Lansing, Mich.

Archibald E. Minard, Dean of the School of Science and Literature, North Dakota Agricultural College, Fargo, N. Dak.
Alexander A. Mackimmie, Professor of Economics and Sociology and Head of Department, Chairman of the Division of Humanities, Massachusetts Agricultural College, Amherst, Mass.

ADVISORY COMMITTEE ON COMMERCE AND BUSINESS

C. M. Thompson, Dean, College of Commerce and Business Administration, University of Illinois, Urbana, Ill.
J. W. Scott, Dean of Academic Course, Alabama Polytechnic Institute, Auburn, Ala.
E. O. Prather, Dean, South Dakota State College of Agriculture and Mechanic Arts, Brookings, S. Dak.
J. E. LeRossingnol, Dean, College of Business Administration, University of Nebraska, Lincoln, Nebr.
E. F. Brown, Dean, School of Science and Business, North Carolina State College of Agriculture and Engineering, Raleigh, N. C.
J. V. Bowen, Professor of Finance and Marketing, Mississippi Agricultural and Mechanical College, Agricultural College, Miss.

ADVISORY COMMITTEE ON VETERINARY MEDICINE

D. H. Udall, Professor of Veterinary Medicine, New York State Veterinary College, Ithaca, N. Y.
Albert G. G. Richardson, Professor of Veterinary Medicine, George State College of Agriculture, Athens, Ga.
Bennett T. Simms, Professor of Veterinary Medicine, Oregon Agricultural College, Corvallis, Oreg.

ADVISORY COMMITTEE ON ENGINEERING

R. A. Seaton, Dean of Division of Engineering, Kansas State Agricultural College, Manhattan, Kans.
G. W. Bissell, Dean, Division of Engineering, Michigan State College of Agriculture and Applied Science, Lansing, Mich.
L. W. Wallace, Executive Secretary, American Engineering Council, 26 Jackson Place, Washington, D. C.
Anson Marston, Dean, Division of Engineering, Iowa State College of Agriculture and Mechanic Arts, Ames, Iowa.
A. W. Berresford, The Grosvenor, 35 Fifth Avenue, New York, N. Y.

ADVISORY COMMITTEE ON FINANCE AND BUSINESS

Robert G. Sproul, Vice President of the University, Comptroller, and Secretary of the Regents, University of California, Berkeley, Calif.
Fay E. Smith, Secretary, Board of Trustees, University of Wyoming, Laramie, Wyo.
Alfred S. Brower, Comptroller, North Carolina State College of Agriculture and Engineering, Raleigh, N. C.
Robert L. Himes, Business Manager, Louisiana State University and Agricultural and Mechanical College, Baton Rouge, La.
Charles H. Gorman, Comptroller, University of Nevada, Reno, Nev.

ADVISORY COMMITTEE ON LIBRARY FACILITIES AND SERVICES

Willard P. Lewis, Librarian, University of New Hampshire, Durham, N. H.
Whitman Davis, Librarian, Mississippi Agricultural and Mechanical College, Agricultural College, Miss.
Cora Miltimore, Librarian, University of Florida, Gainesville, Fla.
L. L. Dickerson, American Library Association, 86 E. Randolph St., Chicago, Ill.
Reba Davis, Librarian, University of Wyoming, Laramie, Wyo.

In addition to assistance from these advisory committees, the following organizations cooperated in the survey: Association of Land-Grant Colleges and Universities; American Veterinary Medical Association; Association of Governing Boards of State Universities and Allied Institutions; American Vocational Association; American Home Economics Association; Federal Board for Vocational Education; and United States Department of Agriculture.

Specialists for the initial preparation of questionnaires were selected from the individuals in whom the largest number of institutions had expressed confidence. These specialists were appointed on the survey staff and brought to Washington, where in consultation with the director of the survey initial drafts of the questionnaires were prepared. All specialists were instructed that whatever other aspects of activity or functional interest should be covered by the questionnaires the problems raised by the land-grant college staffs themselves must be included. After initial preparation of the questionnaires the advisory committees were in a number of cases brought together as a group to review the questionnaire in their fields; in other instances the specialists who made the initial preparation of the questionnaire visited the institutions in which the advisory committee members were located for purposes of consultation and review of the questionnaire.

It was felt that the organization of the survey upon these functional and activity lines did not sufficiently enlist the cooperation and interest of the individual institutions nor fully coordinate procedure with important considerations in the situation to be surveyed. Each institution was therefore requested to designate a local survey committee. One or more members of the staff of every land-grant institution served on one of the committees organized from the functional standpoint. These members of the functional committees were usually included upon the institutional committee and thus intimately related the functional conception of the survey to the institutional sources of information. In many instances these local members of the office's survey staff were made chairmen of the institutional committee. Forty-three of the institutions complied with the request for appointment of committees. In other cases no formal committee was designated, but the president assigned the

institutional work in connection with the survey to appropriate persons as need arose. The burden of the institutional activity in connection with the survey naturally fell upon the chairman of the local committee or upon the presidents. The list of institutional chairmen follows:

CHAIRMEN OF LOCAL COMMITTEES OF LAND-GRANT COLLEGES

Alabama: Alabama Polytechnic Institute, Auburn. Dr. J. W. Scott, Dean of Academic Courses.

Alaska: Alaska Agricultural College and School of Mines, Fairbanks. President Charles E. Bunnell.

Arizona: University of Arizona, Tucson. P. H. Ross, Director of Extension Service.

Arkansas: University of Arkansas, Fayetteville. J. O. Creager, Dean of the College of Education.

California: University of California, Berkeley. Charles B. Lipman, Dean of Graduate Division.

Colorado: Colorado Agricultural College, Fort Collins. S. A. Johnson, Dean of the Faculty.

Connecticut: Connecticut Agricultural College, Storrs. G. C. White, Dean of the Division of Agriculture.

Delaware: University of Delaware, Newark. Charles A. McCue, Dean, School of Agriculture.

Florida: University of Florida, Gainesville. Dr. Joseph Roemer, Professor of Secondary Education.

Georgia: Georgia State College of Agriculture, Athens. President, A. M. Soule.

Hawaii: University of Hawaii, Honolulu. L. A. Henke, Professor of Agriculture.

Idaho: University of Idaho, Moscow. E. J. Iddings, Dean, College of Agriculture.

Illinois: University of Illinois, Urbana. Dr. C. E. Chadsey, Dean, College of Education.

Indiana: Purdue University, Lafayette. Prof. R. B. Wiley.

Iowa: Iowa State College of Agriculture and Mechanic Arts, Ames. President, R. M. Hughes.

Kansas: Kansas State Agricultural College, Manhattan. L. E. Call, Dean of Agriculture.

Kentucky: University of Kentucky, Lexington. Thomas Cooper, Dean, College of Agriculture.

Louisiana: Louisiana State University and Agricultural and Mechanical College, Baton Rouge. Dr. I. C. Nichols, Professor of Applied Mathematics.

Maine: University of Maine, Orono. Paul Cloke, Dean of the College of Technology.

Maryland: University of Maryland, College Park. Dr. W. S. Small, Dean, College of Education.

Massachusetts: Massachusetts Agricultural College, Amherst. William L. Machmer, Dean of the College.

Massachusetts Institute of Technology, Cambridge. Col. Frank L. Locke, Personnel Director.

Michigan: Michigan State College of Agriculture and Applied Science, East Lansing. V. R. Gardner, Director of experiment station.

Minnesota: University of Minnesota, Minneapolis. W. C. Coffey, Dean, Department of Agriculture.

Mississippi: Mississippi Agricultural and Mechanical College, Agricultural College, President B. M. Walker.

Missouri: University of Missouri, Columbia. Frederick B. Mumford, Dean of the Faculty.

Montana: Montana State College of Agriculture and Mechanic Arts, Bozeman. President Alfred Atkinson.

Nebraska: University of Nebraska, Lincoln. Dr. W. E. Sealock, Dean of Teachers College.

Nevada: University of Nevada, Reno. President Walter E. Clark.

New Hampshire: University of New Hampshire, Durham. Frederick W. Taylor, Dean, College of Agriculture.

New Jersey: Rutgers University, New Brunswick. Dr. Carl R. Woodward, Assistant to the President.

New Mexico: New Mexico College of Agriculture and Mechanic Arts, State College. President H. L. Kent.

New York: Cornell University, Ithaca. Prof. Julian E. Butterworth, Sage College, Cornell.

North Carolina: North Carolina State College of Agriculture and Engineering, Raleigh. I. O. Schaub, Dean, School of Agriculture.

North Dakota: North Dakota Agricultural College, Agricultural College. Alfred H. Parrott, Registrar.

Ohio: Ohio State University, Columbus. G. W. Eckelberry, Assistant to President.

Oklahoma: Oklahoma Agricultural and Mechanical College, Stillwater. Dr. C. H. McElroy, Dean of the School of Science and Literature.

Oregon: Oregon Agricultural College, Corvallis. Dr. A. B. Cordley, Dean, School of Agriculture.

Pennsylvania: Pennsylvania State College, State College. Dr. C. W. Stoddart, Dean, School of Liberal Arts.

Porto Rico: University of Porto Rico, Rio Piedias. J. F. Maura, Registrar.

Rhode Island: Rhode Island State College, Kingston. Miss L. C. Tucker, Registrar.

South Carolina: Clemson Agricultural College, Clemson College. W. H. Washington, Registrar.

South Dakota: South Dakota State College of Agriculture and Mechanic Arts, Brookings. President C. W. Pugsley.

Tennessee: University of Tennessee, Knoxville. J. D. Hoskins, Dean of the University.

Texas: Agricultural and Mechanical College of Texas, College Station. Charles Puryear, Dean of the College.

Utah: Utah Agricultural College, Logan. F. L. West, Dean of the Faculty.

Vermont: University of Vermont and State Agricultural College, Burlington. President Guy W. Bailey.

Virginia: Virginia Agricultural and Mechanical College and Polytechnic Institute, Blacksburg. Louis O'Shaughnessy, Acting Dean of the School of Engineering.

Washington: State College of Washington, Pullman. C. C. Todd, Dean of College of Science and Arts.

West Virginia: West Virginia University, Morgantown. C. R. Jones, Dean, College of Engineering.

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Wisconsin: University of Wisconsin, Madison. Prof. Noble Clark, Assistant Dean of Agriculture.
Wyoming: University of Wyoming, Laramie. J. F. Soule, Dean, College of Liberal Arts.

Tentative questionnaires having been developed in the manner indicated and institutional committees having been set up, the method of distributing and explaining questionnaires to individual institutions required consideration. Specialists who had assisted in the preparation of the questionnaires had been closely associated with specialists in other fields. They had been in constant consultation during periods varying from three weeks to three months with the director of the survey in regard to their own work and in regard to its relationships with other portions of the survey project. Since also the advisory committees in functional fields had been intimately associated in the preparation and review of questionnaires, their familiarity with the details and purposes of the inquiry in their own fields was considerable. To the specialists and to the members of the advisory committees, therefore, was assigned the task of visiting individual institutions and explaining the questionnaire in person to the chairman of the local committees and to other persons in their fields. In individual cases their function was that of handling with the local institutions the specific questionnaire pertaining to their specialty. They were also enabled to advise and to assist with reference to other aspects of the survey to a degree that could not have been obtained by correspondence alone. Thus, in practically every institution there was at least one man upon the institutional staff who was or had been employed on the survey staff and who had become more or less familiar with the whole survey project by reason of his work in the Office of Education. In addition, every institution was visited by from 4 to 10 specialists in individual fields to explain the work of the survey with special reference to his field. During the first years of the survey work this field force traveled almost 200,000 miles and spent, in institutions other than their own, time upon the survey job equivalent to that of one man for three years. This is exclusive of time spent at the institutions by the permanent staff of the Office of Education. After questionnaires had been prepared and distributed to the local institutional committees in the manner indicated, time of the permanent employees of the Office of Education equivalent to that of one person for approximately two years was spent in the institutions to meet specific problems that arose in the prosecution of the work.

This combination of field service by functional committees and institutional local committees safeguarded many of the difficulties to be expected in a survey of the kind undertaken. In many instances

all schedules were carefully reviewed by the chairman of the local committee or by the president of the institution himself prior to return to the office. Several institutions employed upon their staffs especially for the purpose persons to supervise the preparation of questionnaire returns. The visits of the field staff made available a large body of information and impression which could not be secured adequately upon the basis of the questionnaire study alone. The employment of members of the advisory committees or of the specialists who made the initial preparation of the questionnaires to draft the tentative reports in specific fields insured to a considerable degree the incorporation of this information and impression in the survey report.

The following table shows the titles of the questionnaires used and the institutions that made returns in each case. Attention is called to the fact that owing to a disastrous hurricane in Porto Rico this institution was not requested to make returns on any of the questionnaires.

TABLE 1.—*Answers to questionnaires returned to office of education in land-grant college survey*

[— Returned; 0 not returned; × does not apply]

Institution	I, former students	III, individual staff	IV, control and finance	VII, registrar	VIII, library	X, agriculture	XI, engineering	XII, home economics	XIII, teacher training	XIV, arts and sciences	XV, military	XVI, commerce and business	XVII, professional veterinary medicine	XVIII, adult education	XIX, research and graduate	XX, student welfare	XXI, county agents	Summer session	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Alabama Polytechnic Institute	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18
Alaska Agricultural College	×	—	—	—	×	0	×	×	×	0	0	×	×	×	×	0	×	×	3
Arizona, University of	0	—	—	0	—	—	—	—	—	—	—	—	×	—	—	—	—	0	14
Arkansas, University of	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	17
California, University of	—	—	0	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	16
Colorado Agricultural College	—	—	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	17
Connecticut Agricultural College	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	×	16
Delaware, University of	—	—	0	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	16
Florida, University of	—	—	—	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	16
Georgia State College of Agriculture	—	—	—	—	—	—	—	—	—	0	—	—	—	—	—	0	—	—	16
Hawaii, University of	—	—	—	—	—	—	—	—	—	—	—	—	×	×	—	—	×	—	15
Idaho, University of	—	—	—	—	—	—	—	—	—	0	—	—	×	—	0	—	—	—	15
Illinois, University of	0	—	—	—	—	—	—	—	—	0	—	×	×	—	—	—	—	—	15
Indiana, Purdue University	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	16
Iowa State College	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	18
Kansas State Agricultural College	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	18
Kentucky, University of	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	17
Louisiana State University	—	—	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	17
Maine, University of	—	—	0	—	—	—	—	—	—	—	—	—	×	—	—	—	—	0	14
Maryland, University of	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	0	16
Massachusetts Agricultural College	—	—	—	—	—	—	×	—	—	—	—	×	×	×	—	—	—	—	15
Massachusetts Institute of Technology	—	—	—	—	—	×	—	×	×	×	—	—	×	—	×	—	×	—	10
Michigan State College	—	—	—	—	—	0	—	—	0	0	—	—	×	—	0	—	—	—	15
Minnesota, University of	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	11
Mississippi Agricultural and Mechanical College	—	—	—	—	—	—	—	×	—	—	—	—	×	—	—	—	—	×	74

Missouri, University of	–	–	–	–	–	–	–	–	0	–	–	–	X	–	–	–	–	0	15
Montana State College	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	X	16
Nebraska, University of	–	–	–	–	–	–	–	–	–	0	–	–	X	–	–	–	0	–	15
Nevada, University of	–	–	0	–	–	–	–	–	–	–	–	–	X	–	–	–	0	–	15
New Hampshire, University of	–	–	–	–	–	0	–	–	–	–	–	–	X	–	0	–	–	–	15
New Jersey, Rutgers University	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	17
New Mexico College of Agriculture and Mechanic Arts	–	0	0	–	0	0	–	0	0	0	0	0	X	0	0	0	0	0	3
New York, Cornell University	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	–	17
North Carolina State College	–	–	–	–	–	–	–	X	–	0	–	–	X	–	–	–	0	–	15
North Dakota Agricultural College	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	0	–	16
Ohio State University	–	–	–	–	–	–	–	–	–	0	–	–	–	–	0	–	–	0	15
Oklahoma Agricultural and Mechanical College	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	17
Oregon Agricultural College	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	17
Pennsylvania State College	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	17
Rhode Island State College	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	X	16
South Carolina, Clemson Agricultural College	–	–	–	–	–	–	–	X	–	–	–	–	X	–	–	–	–	–	16
South Dakota State College	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	0	–	16
Tennessee, University of	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	17
Texas Agricultural and Mechanical College	–	–	–	–	–	–	–	X	–	–	–	X	–	–	–	–	–	–	16
Utah Agricultural College	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	17
Vermont, University of	–	–	–	–	–	–	–	–	–	0	–	–	X	–	–	0	–	–	15
Virginia Agricultural and Mechanical College	–	–	–	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	17
Washington State College	–	–	–	–	–	–	–	–	–	0	–	–	–	–	–	–	–	–	17
West Virginia University	–	–	0	–	–	–	–	–	–	–	–	–	X	–	–	–	–	–	16
Wisconsin, University of	–	–	–	–	–	–	–	–	–	–	–	0	X	–	0	–	–	–	15
Wyoming, University of	–	–	–	–	–	–	–	–	–	0	–	–	X	–	–	–	–	0	15
Total returned	48	50	45	50	49	46	49	43	46	38	49	42	10	47	43	47	43	39	784
Percentage returned	96	98	88	98	98	92	100	97	94	76	96	95	100	98	88	92	89	85	92

TABLE 2.—*Answers to questionnaires sent to negro land-grant colleges*

[–, Returned; 0, not returned]

Institution	I, former students	III, individual staff	IV, control and finance	VII, registrar	VIII, library	X, agriculture	XI, engineering	XII, home economics	XIII, teacher training	XIV, arts and sciences	Summer sessions	Subcollegiate work	XVI, commerce, and business	XVIII, adult education	XX, student relations	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Alabama Agricultural and Mechanical Institute	0	–	–	–	–	–	0	–	–	0	–	–	0	0	–	10
Arkansas, Agricultural, Mechanical and Normal School	0	–	–	–	–	–	0	–	–	–	–	–	–	–	–	13
Delaware State College	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	14
Florida Agricultural and Mechanical College	0	–	0	0	0	–	–	–	0	–	0	0	–	–	–	8
Georgia State Industrial College	0	0	–	–	–	–	–	0	–	–	–	–	–	–	0	11
Kentucky State Industrial College	0	0	–	–	0	–	0	–	0	–	–	–	–	–	–	10
Louisiana Southern University	0	–	–	–	–	–	0	–	–	–	–	–	0	–	–	12
Maryland, Princess Anne Academy	0	0	–	–	–	–	–	–	–	–	–	–	–	–	–	13
Mississippi, Alcorn Agricultural and Mechanical College	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	14
Missouri, Lincoln University	0	–	–	–	–	0	0	–	–	–	–	–	0	0	–	10
North Carolina Negro Agricultural and Technical College	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	15
Oklahoma Agricultural and Normal University	0	–	–	–	–	0	–	–	–	–	–	–	–	–	–	13
Normal, Industrial, Agricultural, and Mechanical College of South Carolina	0	0	–	–	–	–	–	–	–	–	–	–	–	–	–	13
Tennessee Agricultural and Industrial State College																0
Texas, Prairie View Normal and Industrial College	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	14
Virginia Normal and Industrial Institute	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	14
West Virginia State College	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	15
Total returned	2	12	15	15	14	14	11	15	14	15	15	15	13	14	15	199

Special mention should be made of two questionnaires—the questionnaires to be filled in by graduates and ex-students and the individual staff inquiry. A questionnaire was prepared to be filled in by the graduates and ex-students of the land-grant institutions who matriculated in 12 selected years, arranged in four groups of three years each. A record for each matriculant in these years was prepared by the institutions themselves. In addition, a questionnaire for filling in by the individual student was sent out by each institution for direct return to the Office of Education. Thirty-seven thousand three hundred and forty-two graduates and ex-students cooperated by filling in the questionnaire. A special questionnaire to be filled out by each member of the staff was also sent to the institution. The chairman of the local committee or other designated authority was asked to collect and check the returns from the staff members of the institution to insure a reasonable degree of accuracy of reply. Twelve thousand and thirty-two individual records of staff members of the land-grant colleges were thus secured.

Approximately 500,000 pages of questionnaire returns were collected during the course of the survey. Of this number, 400,000 were furnished by the graduate and ex-student questionnaires and the individual staff inquiry returns: these questionnaires were handled by means of tabulating machinery. The task of maintaining control of this vast body of information in systematic form as to make it easily available in any relationships desired, was solved in the following manner. Large tabulation sheets for each questionnaire were prepared. These sheets brought together a record for all institutions of every fact, opinion, and practice upon which information was furnished in so far as the information was such as could be tabulated. The information upon approximately 80,000 pages of questionnaire was thus reduced to approximately 3,000 tabulation sheets and all points covered classified according to the questionnaire fields. When questionnaires called for comment or considerable writing upon any point, the pages for each such point were extracted and assembled. In order to provide a further and ready means of locating material upon any specific point, a detailed index of the entire group of questionnaires was prepared.

As the questionnaires were received the returns were transferred from the questionnaire returns to the tabulation sheets. This work of transfer was carried on by specialists in the Office of Education and by specialists employed for the purpose. It was not assigned to clerks. The purpose of using high-grade assistants for the more or less mechanical operations involved was in order that discrepancies might be discovered and a degree of editing of returns might be carried on at the same time that the recording of the returns was

done. When errors, discrepancies, and omissions were discovered by the specialists during this process, the pages in question were returned to the institution with a request for correction or explanation. The greater completeness of returns and the greater accuracy in returns thus obtained appear to have justified this method of procedure. Specialists who prepared the tentative reports carried the review and editing of returns still further and contributed materially to the accuracy of the record.

Owing to the overlapping of interests of the various fields and in order to provide internal checks, a deliberate policy was pursued of requesting the same information upon important points in different form in different questionnaires. For instance, provision for check was secured by asking for totals under certain classifications in one questionnaire and detailed analysis of certain components of the total in several other questionnaires. By combining the analyses and checking with totals, discrepancies could be discovered and requests made that they be rectified.

When returns had been received and tabulated, totals, averages, means, etc., were run for the various columns of the tabulation sheets for such points as it was clearly evident would be desired by the specialists who prepared the tentative report. Specialists were then employed and brought to Washington to draft tentative reports upon their subject-matter fields. They had available to them for this work the questionnaire returns themselves, the tabulation sheets, the assembled sheets upon points which could not be tabulated, printed reports, and exhibits.

Directions for authors of tentative reports were prepared by the director of the survey in order to insure unity of approach and attitude. The first step in the preparation of the tentative draft of the report upon each field of interest was the preparation of an outline which would indicate in detail the treatment and the scope. This outline was based upon initial examination of available material. The writing of the report itself did not begin until the director of the survey had discussed the outline with the specialists and formally approved the proposed treatment. The outline in each case then constituted the official plan for the specialist's work and was filed with the director of the survey. All subsequent changes in scope or in method of treatment were submitted to the director of the survey and if approved were incorporated in a revised outline. It was thus possible to prevent a considerable extent of duplication of effort by the specialists engaged upon the work and to maintain a certain unity of treatment throughout the various reports. At the same time sufficient flexibility was permitted to insure necessary freedom in treating matters peculiar to specific fields.

Upon completion of the tentative report in a specific field it was submitted for review, comment, and criticism to each member of the advisory committee in that field. These comments and criticisms were then considered by the specialist or specialists responsible for the tentative report and by the director of the survey. Each section of the tentative report, therefore, represented substantially the combined judgment of the specialists, the advisory committee, and the director of the survey. The reports were then submitted to the members of the National Advisory Committee for comment and criticism and these were embodied in so far as the judgment of the office's staff permitted. The entire group of tentative reports was then reviewed by the director of the survey and in consultation with members of the staff, reorganizations, reconciliations, and connective matter prepared.

SURVEY STAFF

Director, Arthur J. Klein, Chief of the Division of Higher Education, U. S. Office of Education.
Assistant to Director, John H. McNeely, U. S. Office of Education.
Abel, James F.—Specialist in Foreign Education, U. S. Office of Education.
Alderman, L. R.—Chief, Service Division, U. S. Office of Education.
Badger, Henry G.—Statistical Assistant, U. S. Office of Education.
Bane, Lita—Professor of Home Economics, University of Wisconsin.
Banks, W. R.—President, Prairie View State Normal and Industrial College, Prairie View, Tex.
Barre, Henry W.—Director of Research, Clemson Agricultural College.
Becker, Jane S.—County Home Demonstration Agent, New York State College of Home Economics, Cornell University.
Betten, Cornelius—Director of Resident Instruction, New York State College of Agriculture, Cornell University.
Blitz, Anne D.—Dean of Women, University of Minnesota.
Blose, David T.—Statistical Assistant, U. S. Office of Education.
Brown, Charles H.—Librarian, Iowa State College.
Burns, Katherine V.—Assistant Professor of Home Economics, University of Illinois.
Buchanan, R. E.—Dean of Graduate College, Iowa State College.
Call, Leland E.—Director of Agricultural Experiment Station, Kansas State Agricultural College.
Cavanaugh, Robert E.—Director of Extension, Indiana University.
Clark, J. S.—President, Southern University, Baton Rouge, La.
Coffey, Walter C.—Dean and Director, Department of Agriculture, University of Minnesota.
Coffman, Lotus D.—President, University of Minnesota.
Cooper, Thomas P.—Dean and Director, College of Agriculture and Agricultural Experiment Station, University of Kentucky.
Creswell, Mary E.—Director, Division of Home Economics, Georgia State College of Agriculture.
Crigler, Nina B.—Formerly Head of Department of Home Economics, University of Arizona.
Davis, John W.—President, West Virginia State College.

Duncan, Luther N.—Director of Extension Service, Alabama Polytechnic Institute.
Fain, John R.—Professor of Agronomy, Georgia State College of Agriculture.
Foster, Emery M.—Statistical Assistant, U. S. Office of Education.
Frazier, Ben W.—Specialist in Teacher Training, U. S. Office of Education.
Funchess, Marion J.—Dean, College of Agriculture, Alabama Polytechnic Institute.
Gandy, John M.—President, Virginia Normal and Industrial Institute, Ettrick, Va.
Gibson, A. W.—Instructor, New York State College of Agriculture, Cornell University.
Gillis, Ezra L.—Registrar, University of Kentucky.
Greenleaf, Walter J.—Associate Specialist in Higher Education, U. S. Office of Education.
Grossley, Richard S.—President, State College for Colored Students, Dover, Del.
Haggerty, Melvin E.—Dean, College of Education, University of Minnesota, Minneapolis.
Hamlin, Herbert M.—Associate Professor of Vocational Education, Iowa State College.
Harris, Jessie W.—Professor of Home Economics, University of Tennessee.
Hubert, Benjamin F.—President, Georgia State Industrial College.
Hutcheson, John R.—Director of Extension Service, Virginia Polytechnic Institute.
Jardine, James T.—Director of Agricultural Experiment Station, Oregon Agricultural College.
John, Walton C.—Associate Specialist in graduate and professional Education, U. S. Office of Education.
Johnson, Edw. C.—Dean and Director of the Agricultural College and Experiment Station, State College of Washington.
Justin, Margaret M.—Dean of Division of Home Economics, Kansas State Agricultural College.
Kalbach, Lewis A.—Chief Clerk, U. S. Office of Education.
Krueger, Jean—Head of Department of Home Economics, Michigan State College.
Kyle, Edwin C.—Dean, School of Agriculture, Agricultural and Mechanical College of Texas.
Leveque, Nathalie—U. S. Office of Education.
Lory, Charles A.—President, Colorado Agricultural College.
McDowell, M. S.—Director of Extension, School of Agriculture, Pennsylvania State College.
Machmer, William L.—Dean of the College and Professor of Mathematics, Massachusetts Agricultural College.
Malott, John O.—Specialist in Commercial Education, U. S. Office of Education.
Maris, Paul V.—Director of Extension, Oregon Agricultural College.
Massey, Felix M.—Dean of Men, University of Tennessee.
Matherly, Walter J.—Dean, College of Commerce and Journalism, University of Florida.
McCracken, C. C.—Professor, Department of School Administration, Ohio State University.
Meyer, A. J.—Director of Agricultural Extension Service, University of Missouri.
Middlebrook, William T.—Comptroller, University of Minnesota.
Milam, Ava B.—Dean, School of Home Economics, Oregon Agricultural College.

Miller, Merritt F.—Professor of Soils, College of Agriculture, University of Missouri.
Morey, Lloyd—Comptroller, University of Illinois.
Morrison, Frank B.—Director, New York State Agricultural Experiment Station.
Mumford, F. B.—Dean and Director, University of Missouri.
Nicholson, Edward E.—Dean of Student Affairs, University of Minnesota.
Ogan, Ralph O.—Assistant in the Department of School Administration, Ohio State University.
Pearson, Raymond—President, University of Maryland.
Peck, Francis W.—Director of Agricultural Extension, University of Minnesota, University Farm, St. Paul.
Potter, A. A.—Dean, Schools of Engineering, Purdue University.
Pritchard, George H.—Department of Physical Education, Hiram College, Hiram, Ohio.
Proffitt, Maris M.—Specialist in Industrial Education, U. S. Office of Education.
Ramsower, H. C.—Director of Extension, Ohio State University.
Ratcliffe, Ella B.—U. S. Office of Education.
Ross, P. H.—Director of Extension Service, University of Arizona.
Slate, William L.—Director, Connecticut Agricultural Experiment Station, New Haven, Conn.
Springer, D. W.—Secretary, Association of Governing Boards of State Universities and Allied Institutions, Washington, D. C.
Stange, Charles H.—Dean, Division of the Veterinary Medicine, Iowa State College.
Steeb, Carl E.—Business Manager, Ohio State University.
Stoddart, Charles W.—Dean, School of Liberal Arts, Pennsylvania State College.
Symons, T. B.—Director of Extension Service, University of Maryland.
Thomas, John M.—President, Rutgers University.
Tavernetti, Thomas F.—Assistant to the Dean of the College of Agriculture, University of California, Berkeley.
Thatcher, Roscoe W.—President, Massachusetts Agricultural College.
Van Rensselaer, Martha—Director, New York State College of Home Economics, Cornell University.
Walster, Harlow L.—Dean of School of Agriculture, North Dakota Agricultural College.
Watts, Ralph L.—Dean, College of Agriculture, Pennsylvania State College.
Wilkinson, Robert S.—President, Normal, Industrial, Agricultural, and Mechanical College of South Carolina.

In spite of the attempt to safeguard information and to insure a high degree of completeness and accuracy, it is fully recognized that the indifference and ignorance of individuals in some cases was reflected in the returns. Guesses rather than facts, opinions rather than records, evasions rather than the truth, have in spite of all efforts doubtless crept in at certain points. Nevertheless, it is believed that the cordial cooperation and honest effort of the institutions, quite apart from the checks made by the survey itself, reduce these faults to a minimum.

It was fully recognized that in many instances the information available permitted conclusions and inferences of somewhat broad

or general character only and did not provide a basis for the refinement of analysis that is desirable. Throughout the preparation of the survey report it was the purpose of the director of the survey to emphasize the need that specialists guard against drawing conclusions unwarranted by the material submitted. Further, it has in many cases been necessary because of practical considerations of time and expense to treat certain aspects of the study in rather broad outline, although the material for detailed treatment was available. In many instances, therefore, the survey has indicated that further presentation and study of the data are desirable for purposes more specific than those of the survey.

SURVEY OF LAND-GRANT COLLEGES AND UNIVERSITIES

PART I.—HISTORICAL INTRODUCTION

The history of the land-grant institutions in the United States is the story of the growth of an idea—an idea centered in the democratization of higher learning.

In the beginning the idea was vague and nebulous. It came into existence about the middle of the last century with the realization that the industrial, commercial, and intellectual development of the Nation depended upon the higher education of the masses.

At that time most of the American universities and colleges were private institutions and they confined themselves principally to the teaching of the traditional classics, letters, and scholastic subjects. The scientific, the technical, and the practical as applied to the industries and trades, in which the vast majority of the people were engaged, had no place in the scheme of their curricula. Higher education was limited largely to those who planned to enter the learned professions.

From the first the idea of democratizing higher learning received little sympathy from the existing private universities and colleges. The proposal was regarded as more or less visionary. The early leaders, therefore, realized that a new type of college would have to be created—a college that would provide instruction in both the liberal and practical arts for the classes of American citizens that had previously not had the means nor the social background for higher education in the old institutions. To reach the masses of people in all parts of the country, it was necessary to establish at least one of the colleges in every State in the Union.

Since the industrial classes in the United States during the period prior to the outbreak of the Civil War were largely agricultural, the initial discussion centered about the organization of agricultural colleges. In several States such institutions were organized through private subscriptions. Similar colleges under State control and support were established in one or two other States. The private agricultural colleges failed. The State-supported institutions continued to operate. It then became evident

that if the movement was to succeed, if higher education was to be furnished the industrial classes, and if it was to be available in every part of the country, the new type of college would have to be supported by public taxation rather than private endowment and that it would have to be State-controlled. Any plan of inducing the governments of all the States on their own initiative to organize the colleges was an impossible undertaking.

The final recourse was the Federal Government. As early as 1787 the Congress of the Confederation passed an ordinance for the government of the Northwest Territory by setting aside public lands for the support of education. Later as new States were organized, the Congress of the United States made land grants for common schools. Public agitation was started, therefore, for the establishment of the new type of institution, vaguely referred to as the Industrial University, the Agricultural College, or the People's College, through grants of public lands by the Federal Government to each of the States. Under this plan, it was assured that every State would have one of the colleges; that the institutions would be supported through public sources, and that they would be open to the masses. The proposal succeeded. Congress enacted a law providing for the grant of public lands to be utilized in creating an endowment to support a college in each of the States. This law opened the way for the emancipation of higher learning from its classic and formal traditions and for the recognition of the principle that every American citizen is entitled to receive higher learning of a practical type. It was the beginning of the modern institutions of higher education supported by public taxation.

Even with the establishment of a college in each State through Federal land grants, the movement was but in its inception. The discovery was soon made that the idea of furnishing scientific, technical, and practical instruction to the industrial classes could not be carried into effect immediately by the colleges for the reason that no suitable organized body of scientific, technical, and practical knowledge existed. The industrial and the agricultural classes knew as much or more about the practical side of their employments than the teachers in the newly organized colleges. It was necessary to build up a body of scientific knowledge. For a number of years, the institutions were mere trade schools in agriculture and mechanic arts of secondary grade supplementing instruction in the classics, letters, and scholastic subjects that were given in the old colleges and universities. Between 1880 and 1885 scientific research into agriculture, engineering, and industry was inaugurated. Agricultural experiment stations were established by the States and located at the colleges for the application of science to agriculture and for the dissemina-

tion of the knowledge thus obtained. The Federal Government gave financial aid to the experiment stations through annual subsidies. The work of the institutions was gradually brought up to the collegiate level. The secondary trade schools in mechanic and industrial arts were transformed into engineering colleges. As more scientific, technical, and practical knowledge was obtained, new courses of instruction were introduced into institutions and the entire scheme of higher education underwent a metamorphosis. With these developments the States began making larger appropriations for the support of the colleges and further assistance was granted by the Federal Government.

The idea of the democratization of higher education was making progress. Much, however, was yet to be accomplished before direct service was actually provided for the great mass of people. Then came the extension service. Through their own representatives, permanently located in the various communities and rural sections, the colleges commenced to furnish instruction by practical demonstration to the people themselves. Great impetus was given this nation-wide system of extension education by the enactment of a law by Congress which provided for the payment of half of its cost while the other half was paid by the State governments or through local sources.

With the broadening of industrial, vocational, and agricultural knowledge, education of these types was introduced into the secondary and elementary schools. The colleges next undertook the training of teachers for this work, the Federal Government also giving financial aid for this purpose. In the original idea of the democratization of higher education, no conception existed that women had any special interests or rights. They did not belong to the industrial classes. Their place was in the home, an institution that it was then thought required no higher learning. But with the modern change in American society, in which women occupy as prominent a place in the social structure as men, it became necessary to include their interests in the college program. Real recognition had to be given not only to the industrial and economic sciences but also to the social and home sciences.

The foregoing presentation is an attempt to picture in general terms the growth of the idea of the democratization of higher learning in the United States, which found realization in the land-grant institutions. It is now proposed to describe their detailed history. These colleges were established as a result of the first Morrill Act, passed by Congress in 1862, but the germ of the idea developed prior to this time. As early as 1845 Jonathan B. Turner was active in the State of Illinois advocating higher education for the industrial

classes and the organization of industrial universities. His plan, which is outlined as follows, was based on the presumption that society is made up of two classes—professional and industrial.

> All civilized society is, necessarily, divided into two distinct cooperative, not antagonistic classes: A small class, whose proper business it is to teach the true principles of religion, law, medicine, science, art, and literature; and a much larger class, who are engaged in some form of labor in agriculture, commerce, and the arts. . . . To enable these industrial classes to realize its benefits in practical life, we need a university for the industrial classes in each of the States, with their consequent subordinate institutes, lyceums, and high schools in each of the counties and towns.
>
> There should be connected with such an institution, in this State, a sufficient quantity of land of variable soil and aspect, for all its needful annual experiments and processes in the great interests of agriculture and horticulture. Buildings of appropriate size and construction for all ordinary and special uses; a complete philosophical, chemical, anatomical, and industrial apparatus; a general cabinet, embracing everything that relates to, illustrates, or facilitates any one of the industrial arts; especially all sorts of animals, birds, reptiles, insects, trees, shrubs, and plants found in this State and adjacent States.
>
> Instruction should be constantly given in all those studies and sciences, of whatever sort, which tend to throw light upon any art or employment, which any student may desire to master, or upon any duty he may be called upon to perform; or which may tend to secure his moral, civil, social, and industrial perfection, as a man.[1]

In 1852 Turner proposed that Congress make a land grant to each State for the establishment of industrial universities in the following terms:

> And I am satisfied that if the farmers and their friends will now but exert themselves they can speedily secure for this State and for each State in the Union, an appropriation of public lands adequate to create and endow in the most liberal manner, a general system of industrial education, more glorious in its design and more beneficial in its results than the world has ever seen before.[1]

As a result of Turner's advocacy of industrial universities, popular sentiment was aroused in the State of Illinois. Farmers' organizations became interested in the project. In 1852 the Illinois farmer's convention adopted resolutions petitioning Congress to endow such institutions with the proceeds from the sale of public lands and in 1853 the State Legislature of Illinois passed a joint resolution asking for support by the Federal Government.

In the meanwhile the movement for higher education of the masses had developed in other States, but it seemed to be concentrated on the idea of the establishment of agricultural colleges. This was due to the fact that agriculture was the principal industry of the country at this time and mechanic arts were closely related and virtually a part of the agricultural industry. The State of Michigan actually

[1] True, Alfred Charles. A History of Agricultural Education in the United States. Pp. 86 and 87.

organized an agricultural college supported by public funds. Eugene Davenport, a graduate of the Michigan State College and dean emeritus of the college of agriculture, University of Illinois, describes the situation in the following memorandum especially prepared for this survey:

While not the first institution of college grade to attempt the teaching of agriculture, the Michigan Agricultural College is the oldest college of its kind in America. It was the first practical fruits of the agitation for education of college grade adapted to the farming profession that swept over the country in the late forties and the early fifties. In those days all colleges were established and maintained on private foundations supplemented by tuition fees. The start was made in four States at about the same time—Maryland, New York, Pennsylvania, and Michigan—all on private foundation except the latter and all failed except Pennsylvania which hung in the balance until the State took it over, at first in part, and finally completely. In the meantime, Michigan was organized and at work.

The reason was this: During the public discussion for education of college grade adapted to the farming profession Michigan was holding a convention for the revision of the State constitution. It so happened that one of the delegates was a warm friend of the new movement and he succeeded in getting a clause into the constitution obligating the State to establish and maintain an agricultural "school" either as an independent institution or as a department of the university. This was in 1850.

The same year the legislature memorialized Congress calling for a gift of 300,000 acres of public land for the support of the agricultural school in Michigan and the same year the State agricultural society petitioned the legislature to establish such a college as the constitution contemplated. The same petition was renewed in 1852 and the legislature of 1855 established such a "school," as an independent "college" to be located on a tract of land to be selected within 10 miles of Lansing. The college was opened May 13, 1857, with a faculty of six and a student enrollment of 73.

At the same time that Michigan was taking steps to establish a State-controlled agricultural college, Marshall P. Wilder was leading a movement for the establishment of an agricultural school in Massachusetts. Similarly in Pennsylvania the State agricultural society agitated the organization of a school for the education of farmers, which later became known as the "Farmers' High School." The society succeeded in securing assistance from the State legislature and through subscriptions established the school as a private institution in 1859. In the State of Maryland the movement for agricultural and practical education for the farmer also developed. Under the leadership of the State agricultural society an agricultural college was chartered by the State legislature and opened in 1859, funds having been raised through stock subscriptions and the State having made a grant of $6,000 annually. The establishment of both an agricultural and a mechanics college for the education of the masses was agitated in New York as early as 1849. The mechanics college

was referred to as a People's College, which was described as follows:

> The plan proposed to combine labor with study and improvement in manual skill with intellectual culture—to have in time a mechanic's institute or seminary in every county and senate district, but in the first effort to establish one central or State college of practical science, wherein our youth, aspiring to efficiency and eminence in life as architects, engineers, or artisans of any sort, might receive a thorough physical and mental training, laboring a part of the day and thus paying at first a part and afterward for a whole subsistence and teaching.[2]

Although Horace Greeley became interested in the idea of a People's College and it was incorporated by the State legislature as a private institution, the necessary funds for its support were never raised. The proposal for an agricultural college met with more favor, for in 1856 the State of New York made a loan of $40,000 for its establishment in Seneca County under private control providing an equal amount was raised by subscription. The necessary funds were subscribed and the agricultural college started several years later, its curricula including natural sciences, mathematics, drawing, bookkeeping, and construction of roads, bridges, and fences with their application to various phases of agriculture. At the outbreak of the Civil War, however, it was closed and never reopened.

The culmination of this movement to democratize higher education and provide colleges for the industrial classes was the first Morrill Act of 1862, one of the great epoch-making events in the educational history of the United States. Justin Smith Morrill, then Representative in the lower House and later United States Senator from the State of Vermont, was its author and is regarded as the father of the land-grant college. From the evidence already presented it is extremely doubtful whether the movement actually originated with him. The establishment of agricultural colleges in a number of the States, the petitions sent to Congress for public-land grants to create industrial and agricultural institutions in each State, and the public agitation and propaganda favoring the new type of technical and industrial education prior to the introduction of the Morrill measure in Congress indicate that the plan had its origin in other sources. To Mr. Morrill, however, belongs the full credit for sponsoring the act and for the promotion of its passage through Congress. This was not accomplished without difficulty, as Mr. Morrill was compelled to present his bill in two successive sessions of the national legislative body before it was finally enacted into law.

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[2] Plan for People's College submitted by Mechanics Mutual Protection at Lockport, N. Y., and afterwards to State organization, December, 1849.

The initial land-grant college bill was introduced into the National House of Representatives by Mr. Morrill in 1857. It immediately received the support of State university presidents, agricultural college leaders, and agricultural and mechanical societies throughout the country. A number of the universities and colleges sent representatives to Washington to canvass personally Members of Congress, furnish data, and render other assistance. Turner in Illinois devoted his time to arousing public sentiment and bringing influences to bear through correspondence and petitions. The bill was finally passed in the House by a vote of 105 to 100 in April, 1858, and in the Senate in February, 1859, the vote being 25 to 22. Although innumerable appeals were made to him by educational leaders for his approval, President Buchanan announced his veto of the bill in the same month. Former president William O. Thompson, of Ohio State University, summarized President Buchanan's reasons for vetoing the measure as follows:

First. The inopportuneness of the time in view of the depleted condition of the Treasury.

Second. The effect feared on the relations between the Federal and State Governments, it being argued that this grant of lands was the exercise of a power outside of the expressly enumerated powers delegated to Congress.

Third. The danger of injury to the new States on the ground that speculators would control large grants of land.

Fourth. A doubt whether the bill would contribute to the advancement of agriculture and mechanic arts, a doubt based on the theory that the Federal Government had no constitutional power to follow the grant into the States and to enforce the application of the funds to the intended objects; that as a matter of fact the State would lose control over the gift after having made it.

Fifth. The interference which the operations of the bill would be likely to bring about with existing colleges in the different States, in many of which agriculture was taught as a science, and in all of which it ought to be so taught; the familiar argument of paralleling and paralizing existing institutions which we have heard in the present generation.

Sixth. A doubt as to the power of Congress under the Constitution to make a donation of public lands for the purpose of educating the people of the several States.

Undismayed by its defeat, Mr. Morrill made a complete answer on all the constitutional questions raised by President Buchanan and in 1861 introduced the bill again at the next session of Congress. A new administration had assumed control of the Government. The complexion of both the House and the Senate had been changed by the election. Notwithstanding this situation considerable opposition developed against the measure. The House Committee on Public Lands, to which it had been referred, reported the bill unfavorably. In the meantime Senator Wade, of Ohio, had presented a similar bill in the Senate, probably by agreement with Mr. Morrill.

The Senate bill was passed first after a number of amendments and after reaching the House, Mr. Morrill, unable to secure action on his own bill succeeded in June, 1862, in obtaining passage of the Senate measure by the House. It was signed by the President in July of the same year so that the charter of the land-grant college bears the name of Abraham Lincoln.

The first Morrill Act, which provided for the establishment of the most comprehensive system of scientific, technical, and practical higher education the world has ever known, contained three outstanding features. The first was the provision for the creation of a permanent endowment through grants of public lands for the organization and support of the colleges. The second was the designation of the type of college to be established. The third was the placing of an obligation upon the States to maintain intact the capital fund of the endowment for the maintenance of the college, which carried the far-reaching implication of future financial support by the State governments themselves.

The provisions of the act dealing with the grants of public lands and the creation of permanent endowments for the colleges were as follows:

> That there be granted to the several States * * * an amount of public land, to be apportioned to each State a quantity equal to 30,000 acres for each Senator and Representative in Congress to which the States are respectively entitled by the apportionment under the census of 1860.
>
> That the land aforesaid * * * shall be apportioned to the several States in sections or subdivisions of sections, not less than one-quarter of a section; and whenever there are public lands in a State subject to sale at private entry at $1.25 per acre, the quantity to which said State shall be entitled shall be selected from such lands within the limits of such State; and the Secretary of the Interior is hereby directed to issue to each of the States in which there is not a quantity of public lands subject to sale at private entry at $1.25 per acre to which said State may be entitled under the provisions land scrip to the amount in acres for the deficiency of its distributive share, said scrip to be sold by said States and the proceeds thereof applied to the uses and purposes prescribed in this act, and for no other use or purpose whatsoever.

Under this provision States having public lands were given title to such land selected within their borders. States without public lands were issued scrip that could be sold.

The second outstanding feature of the act was the description of the college to be organized—a college that was to provide a scientific, technical, and practical higher education to the industrial classes as well as military education. The provision of the law dealing with this question reads as follows:

> That the proceeds of the land-grant sales were to be devoted to the endowment, support, and maintenance of at least one college, where the leading

object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and mechanic arts in such a manner as the legislatures of the States may respectively prescribe in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.

The third provision, obligating the States to maintain the endowment intact and without diminution and to replace it, if lost, is regarded as the great stimulus that resulted in public support of higher education in the United States. Having established the colleges under this act through the endowment provided by Federal grants of public lands, it was incumbent upon the Sates to furnish the necessary additional funds for their future development and expansion. The part of the act covering this phase was as follows:

That all monies derived from the sale of the lands * * * by the States to which lands are apportioned, and from the sale of land scrip hereinbefore provided for, shall be invested in stocks of the United States or of the States, or some other safe stocks, yielding not less than 5 per centum upon the par value of said stocks; and that the monies so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished, * * * and the interest to which shall be inviolably appropriated by each State which may take and claim the benefit of this act * * *.

That if any portion of the fund invested as provided by the foregoing section, or any portion of the interest thereon, shall by any action or contingency be diminished or lost, it shall be replaced by the State to which it belongs, so that the capital of the fund shall remain forever undiminished; and the annual interest shall be regularly applied without diminution to the purposes heretofore mentioned, except that a sum, not exceeding 10 per centum upon the amount received by any State under the provisions of this act, may be expended for the purchase of lands for sites or experimental farms whenever authorized by the respective legislatures of said States. * * * No portion of said fund, nor the interest thereon, shall be applied, directly or indirectly, under any pretense whatever to the purchase, erection, preservation, or repair of any building or buildings.

The act specifically provided that the States should express their acceptance of the provisions of the law through their legislatures within two years and that at least one college should be established by each State within a period of five years. In 1864 the act was amended extending the time for its acceptance an additional two years, and in 1866 a second amendment provided for another 3-year extension. This amendment also fixed the time for the establishment of the college by the State within a period of five years after the filing of its acceptance of the land-grants. The first Morrill Act applied only to the States then in the Union. In 1864 an amendment extended its terms to West Virginia, in 1866 to Nevada, in 1867 to Nebraska, and subsequently the grants were extended to the Territories as they were admitted into the Union so that the act was made

applicable to every State. The Territory of Alaska was recently made a similar land grant for its college through a special act of Congress. Although having established agricultural and mechanical colleges, no Federal grants of public land have yet been made to the Territories of Hawaii and Porto Rico for the benefit of the institutions.

As already indicated, it was necessary for the States to accept formally the provisions of the act through their legislatures. After acceptance the responsibility rested upon them of selling the land or scrip and of organizing colleges to receive the annual income from the endowment. In Table 1 are given the dates of the acceptance of the act by the different States, the number of acres received by them in land or scrip, the original sale price received for the land and scrip by the different States, and the dates of the organization of the colleges and when they were opened to students.

TABLE 1.—*Data on enforcement of terms of first Morrill Act by the States*

Institution	Date of acceptance by States of provisions of Morrill Act	Number of acres of land in place received under Morrill Act	Number of acres in scrip received under Morrill Act	Original total sale price received by States for land and scrip	Date of organization of land-grant college	Date of opening of land-grant college to students
1	2	3	4	5	6	7
Alabama Polytechnic Institute	1867	----------	240,000	$216,000	1872	1872
Alaska Agricultural College and School of Mines	1929	336,000	----------	----------	1922	1922
University of Arizona	1910	150,000	----------	----------	1885	1891
University of Arkansas	1864	----------	150,000	135,000	1871	1872
University of California	1866	150,000	----------	732,233	1868	1869
Colorado Agricultural College	1879	91,600	----------	185,956	1877	1879
Connecticut Agricultural College	1862	----------	180,000	135,000	1881	1881
University of Delaware	1867	----------	90,000	83,000	1867	1869
University of Florida	1870	----------	90,000	80,000	1870	1884
Georgia State College of Agriculture	1866	----------	270,000	242,202	1866	1872
University of Hawaii	----------	----------	----------	----------	1907	1908
University of Idaho	1890	90,000	----------	129,615	1889	1892
University of Illinois	1867	----------	480,000	648,442	1867	1868
Purdue University	1865	----------	390,000	212,238	1869	1874
Iowa State College	1862	240,000	----------	686,817	1858	1859
Kansas State Agricultural College	1863	97,682	----------	491,746	1863	1863
University of Kentucky	1863	----------	330,000	164,960	1879	1880
Louisiana State University	1869	----------	210,000	182,630	1874	1874
University of Maine	1863	----------	210,000	116,359	1865	1868
University of Maryland	1864	----------	210,000	112,504	1856	1859
Massachusetts Agricultural College	1863	----------	360,000	236,287	1863	1867
Massachusetts Institute of Technology	----------	----------	----------	----------	1861	1865
Michigan State College	1863	240,000	----------	991,673	1855	1857
University of Minnesota	1863	120,000	----------	579,430	1851	1851
Mississippi Agricultural and Mechanical College	1866	----------	210,000	188,028	1878	1880
University of Missouri	1863	330,000	----------	363,441	1839	1841
Montana State College	1889	140,000	----------	533,148	1893	1893
University of Nebraska	1867	90,800	----------	560,072	1869	1871
University of Nevada	1866	90,000	----------	107,368	1873	1874
University of New Hampshire	1863	----------	150,000	80,000	1866	1868

TABLE 1.—*Data on enforcement of terms of first Morrill Act by the States*—Con.

Institution	Date of acceptance by States of provisions of Morrill Act	Number of acres of land in place received under Morrill Act	Number of acres in scrip received under Morrill Act	Original total sale price received by States for land and scrip	Date of organization of land-grant college	Date of opening of land-grant college to students
1	2	3	4	5	6	7
Rutgers University	1863	----------	210,000	$115,945	1766	1771
New Mexico College of Agriculture and Mechanic Arts	1898	250,000	----------	----------	1889	1890
Cornell University	1863	----------	990,000	[1] 688,576	1865	1868
North Carolina State College	1866	----------	270,000	135,000	1887	1889
North Dakota Agricultural College	1889	130,000	----------	455,924	1890	1891
Ohio State University	1864	----------	630,000	340,906	1870	1873
Oklahoma Agricultural and Mechanical College	1890	350,000	----------	[2] 835,637	1890	1891
Oregon Agricultural College	1868	90,000	----------	202,113	1865	1865
Pennsylvania State College	1863	----------	780,000	439,186	1855	1859
University of Porto Rico	----------	----------	----------	----------	1903	1903
Rhode Island State College	1863	----------	120,000	50,000	1888	1890
Clemson Agricultural College	1868	----------	180,000	130,500	1889	1893
South Dakota State College	1889	160,000	----------	128,804	1881	1884
University of Tennessee	1868	----------	300,000	271,875	1794	1794
Agricultural and Mechanical College of Texas	1866	----------	180,000	174,000	1871	1876
Agricultural College of Utah	1888	200,000	----------	194,136	1888	1890
University of Vermont	1862	----------	150,000	122,626	1791	1801
Virginia Agricultural and Mechanical College	1870	----------	300,000	285,000	1872	1872
State College of Washington	1889	90,000	----------	247,608	1890	1892
West Virginia University	1863	----------	150,000	90,000	1867	1868
University of Wisconsin	1863	240,000	----------	303,594	1848	1849
University of Wyoming	1889	90,000	----------	73,355	1886	1887
Total	----------	3,766,082	7,830,000	13,478,946	----------	----------

[1] Scrip bought by Mr. Cornell yielding later through resale $5,460,038 for institution.
[2] $103,482 cash and $732,155 deferred payments on lands sold as of 1916.

The first State to accept the act was Iowa in September, 1862. Vermont, the home State of Representative Morrill, expressed acceptance in October and the State of Connecticut in December of the same year. As shown by the table, the act was accepted by 14 States in 1863, by 3 in 1864, by 1 in 1865, by 6 in 1866, by 4 in 1867, by 3 in 1868, by 1 in 1869, and by 2 in 1870. Within a period of eight years after the passage of the first Morrill Act, 37 States had agreed to accept and carry out its provisions for the establishment of the new type of college. At the time of the enactment, the Nation was in the throes of Civil War. A provision of the law specifically provided that no State in rebellion against the United States should be entitled to benefit by the act. The result was that none of the Southern States was able to comply with its terms until after the termination of the war in 1865. With the end of the struggle, however, these States lost no time in expressing acceptance and during the next five years all of them had agreed to receive the Federal land grants and organize agricultural and mechanical colleges. Ten

other States received the land grants under their enabling acts when they changed from the status of Territories and entered the Union. All of them were Western States, 1 accepting the act in 1879, 1 in 1888, 5 in 1889, 1 in 1890, 1 in 1898, and 1 in 1910. Oklahoma's land grant for the college was made under a special act of Congress, its terms being accepted in 1890 while the Territory of Alaska received a similar special grant in 1929.

After the acceptance of the act, the next step was to receive the land grants from the Federal Government, dispose of the land or scrip, and create an endowment fund for the support of the institutions. As 27 States had practically no public lands within their borders, scrip was issued to them. The other 21 made selections of public lands in their own States and then proceeded to dispose of them. Under the terms of the law every State was entitled to 30,000 acres for each Senator and Representative in Congress with the result that the amounts varied to a considerable extent. The State receiving the largest grant was New York, the amount being 990,000 acres. Pennsylvania was second on the list with 780,000 acres, and Ohio was third with 630,000 acres. Illinois received the fourth largest amount with 480,000 acres and Indiana the fifth with 390,000 acres. The grants to the other States ranged from 350,000 down to 90,000 acres. There were seven States that received as little as 90,000 acres, the list including Delaware, Florida, Idaho, Nevada, Oregon, Washington, and Wyoming.

With the receipt of such large amounts of land and scrip, their disposal was no minor undertaking for the different State governments. It was necessary to decide upon the agency to assume the responsibility. In 16 States the regularly constituted State officials, such as governor, treasurer, or auditor, were charged with the sale of the land-grants while in 15 other States the work was turned over to a State board of land commissioners or a single State land commissioner. The board of trustees of the newly organized universities or colleges that were to receive the benefit of the endowment fund disposed of the grants in five States. A university or college fiscal agent was appointed in two other States to manage the entire sale of lands or scrip. The State sinking fund commission was assigned the work in one State, the State board of education in one, a special commission of university and school lands in four, a special commission of State officials in two, and the State surveyor general in one. There were two States that sold their scrip through a special fiscal agent in New York City.

In the sale of the land and scrip, the practices of the States in the earlier days were at great variance. The standard Government prices for public lands at that time, as stated in the first Morrill Act,

was $1.25 per acre. But in order to receive the proceeds immediately, scrip and land were thrown on the market by some States without apparent regard of the price offered. Forced sales resulted and the value of public land rapidly declined. In other instances the land was withheld from sale with the result that higher prices were realized. Other States came into the possession of their grants in subsequent years when there was a scarcity of public lands and they were able to dispose of them at much larger figures. Twenty-eight of the States sold their land or scrip at less than the standard price of $1.25 per acre while 18 States obtained prices ranging above this amount. The lowest price at which any State sold the grants was 41 cents per acre. Another State received only 44 cents, and a third 49 cents. There were eight additional States that disposed of the land or scrip at less than one-half of the regular Government price. The highest price received by any State was $6.22 per acre for the land grants and in the case of two others prices varying from $5 to $6 per acre were received. Two States secured between $4 and $5 and two between $3 and $4.

As a result of the widely different prices at which the land and scrip were sold to the States, the original endowment varied to a great extent. The total proceeds of the land-grant sale of Michigan amounted to $991,673, the largest of any of the States. Oklahoma received the second largest with $835,637, and California was third with $732,233. The total sale price of the land grants of 2 States was between $550,000 and $600,000, of 1 between $500,000 and $550,000, of 2 between $450,000 and $500,000, of 1 between $350,000 and $400,000, of 2 between $300,000 and $350,000, of 2 between $250,000 and $300,000, of 5 between $200,000 and $250,000, of 6 between $150,000 and $200,000, of 11 between $100,000 and $150.000. and of 6 between $50,000 and $100,000.

In the management of the endowment and in compliance with the act providing that the colleges should receive an annual interest yield of 5 per cent, the greatest confusion developed as a result of the various practices adopted by the different States with the result that interest was defaulted in some cases, a part of the principal used for illegal purposes, and, in a few instances, the funds were lost. The prediction of President Buchanan, however, in his veto of the initial land-grant act introduced in Congress by Mr. Morrill, that the States would lose control of the gift and that the Federal Government could not follow the grant into States and enforce the application of the funds to the intended objects was not borne out by history. Upon their attention being called to the failure to comply with the law, most of the States have voluntarily replaced losses and made up discrepancies. Benjamin F. Andrews, who con-

ducted a special inquiry in 1918 into the land-grant college act of 1862 for the Office of Education, gives the following summary of the handling of the endowment funds by the States:

In general it was very difficult, well-nigh impossible, to carry out the exact letter of the law. A study of the detailed histories shows scarcely one State that has not, in some way, at some time been in default.

The principal lines of default have been a delay in investing the capital, or investing at less than 5 per cent, causing loss of income to the college; use of capital for other purposes than for the college; and finally the use of income for purposes not authorized by law. In general these defaults have been made good as soon as proper attention was directed to them.

Although defaults have been corrected, in the main or immediately upon being recognized, yet seldom have deficits been refunded or made up. Especially in the matter of loss of interest from lack of investment or from deficient interest return, it has been usual to replace the investment so as to obtain the required 5 per cent but to allow past losses to remain unsatisfied. * * * In the method of obtaining the required 5 per cent on the vested funds several plans have been adopted.

First. In a large number of States, when it became evident that a continuous 5 per cent investment would be difficult to find, the fund was turned over to the State treasury and the State itself assumed the load of interest, the capital being considered as part of the irreducible State debt. This was done in Connecticut, Delaware, Georgia, Indiana, Kentucky, Louisiana, Maine, Massachusetts, New Hampshire, New Jersey, New York, and Pennsylvania.

Second. In other States the receipts from the sale of lands were turned in to the State treasury as fast as received and added either to the State sinking fund or to general State funds, no attempt at outside investment being made. In such cases the State issues certificates of indebtedness at a good rate of interest. Michigan, Missouri, and Ohio handled their funds in this way.

Third. Other States have invested funds at the best rate obtainable in the open market, and make up the difference between the rate obtained and the required 5 per cent by direct legislative appropriation. Maryland and Rhode Island handled the funds in this way.

Fourth. In Florida, Minnesota, and Wisconsin the legislature has authorized the governing board of the college to transfer funds from the other general college funds in order to make up the deficit in interest.

Fifth. In Illinois, North Carolina, and South Carolina, the fund has been lost by defalcation or dishonesty and has been restored by the legislature. A State bond for the amount has been issued in each of these States.[3]

Since the original sale of the land grants many years ago, the endowment funds have been materially increased in a number of States through profitable investments, additions by the States, and replacements. Some of the States still retain lands included in the grants that have not yet been sold. In Part III, Business Management and Finance, is presented the present value of endowment of the land-grant colleges secured under the first Morrill Act as compared with the figures showing the original sale prices included in Table 1. The annual income received from the endowment is also shown in

[3] Bulletin 1918, No. 13, Bureau of Education, Department of the Interior.

Part III. An example of the increase in the fund is found in the case of the State of New York, which disposed of its scrip to Ezra Cornell, founder of Cornell University. Under a refunding plan devised by Mr. Cornell, the scrip was held and later sold at an enormous profit, the total proceeds reaching $5,460,000. This constitutes a part of the Cornell University endowment and reserve fund at the present time.

A variety of plans were adopted by the State in organizing the new types of college to receive the income from the Federal land-grant endowment. The legislature of 28 States proceeded to establish entirely new State-controlled and State operated agricultural and mechanical colleges. There were 15 States where State universities or colleges were already in operation at the time the Federal land grant was accepted. The income from the endowment was conferred upon these existing State institutions with the understanding that they were to organize colleges or departments of agriculture and mechanic arts in compliance with the terms of the first Morrill Act. In seven States an arrangement was adopted of designating private institutions to receive the annual yield from the endowment, with the stipulation that these private colleges introduce and conduct courses of instruction for the industrial classes and provide them scientific and practical education. Later three of these States converted the private institutions into State-controlled land-grant colleges while in the four other cases the States at a subsequent time organized their own land-grant colleges and withdrew the endowment income from the private institutions. Three Southern States organized both white and negro colleges of agriculture and mechanic arts and divided the annual income from the endowment received under the first Morrill Act between the two institutions, the purpose being to provide the new type of education to both races. Subsequently separate negro land-grant colleges were organized in 14 other Southern States.[4]

The organization of the colleges in the early days following the passage of the act and its acceptance represents in many States a period of doubt and discouragement. Where the States decided to turn over the annual yield from the land-grant endowment to State universities and colleges already in operation the necessity of chartering, organizing, and establishing new institutions was avoided. But in the other States where new colleges were organized, bitter conflicts developed in the State legislature over their location. As a result there was delay in the establishment of the colleges extending over considerable periods of time. In other instances the organization of the colleges were authorized through enactments by the State legislatures, but they did not actually come into existence until a

[4] See Vol. II, Part X, Introduction and Historical Summary, Negro Land-Grant Colleges.

number of years later. In Table 1 are shown the dates when the colleges were organized in each State and the dates when they were opened to students.

Of the land-grant colleges that were established as new institutions by their State governments in complying with the terms of the first Morrill Act, five were opened to students within 1 year after the acceptance of the act by the State, five in 2 years, two in 3 years, three in 4 years, five in 5 years, two in 8 years, two in 9 years, one in 10 years, two in 14 years, and one in 17 years. A number of these colleges have developed into the great State universities and leading technical and engineering schools of the present day. The State of California within two years after the legislature had received the Federal land grant accepted the gift of a site and property of a private college at Berkeley and established the University of California. The State Legislature of Illinois in the same year that the act was accepted organized the Illinois Industrial University, and within a year it was opened to students. The name was changed in 1885 to the University of Illinois. In Indiana delay in the organization of the land-grant college was due to a fight in the State legislature over its location, which continued through two sessions of the legislature. Finally, in 1869 John Purdue offered to donate to the State 100 acres of land and $150,000 in cash, which was accepted together with other private gifts, and Purdue University, at present one of the prominent engineering schools in the country, was established.

In Massachusetts the State legislature, immediately upon accepting the land-grant endowment in 1863, divided the fund, conferring one-third of the income on the Massachusetts Institute of Technology and two-thirds on the Massachusetts Agricultural College. Although both of these institutions had been previously chartered, they were not opened to students until several years later when they received the Federal land grants, so that they actually owe their establishment to the first Morrill Act.

The inception of Cornell University also dates back to the original land-grant college act. The State Legislature of New York accepted the grant in 1863, but a contest developed as to whether the endowment should be given to the State agricultural college at Ovid, which had failed, or the proposed People's College. Although People's College received the fund, it was never established, and in 1865 the State legislature altered its decision, conferring the entire endowment on Cornell University, a new institution organized by Ezra Cornell, which was opened to students in 1868.

The Ohio State University was likewise founded as a result of the first Morrill Act. After accepting the land scrip from the Fed-

eral Government in 1864, the State legislature wavered for six years between several plans for the division of the endowment. In 1870 the Ohio Agricultural and Mechanical College was definitely organized and located at Columbus receiving the entire land-grant endowment. This institution was reorganized by the State legislature in 1878 and became the Ohio State University.

In the case of the States which turned over the annual yield from the land-grant endowment to State-supported institutions of higher learning already in existence at the time of their acceptance of the act, State universities were the beneficiaries in 10 instances. Colleges or departments were added to their organization to provide the required agricultural and mechanic arts instruction. Six of these State universities were the first organized in the history of the United States, the University of Georgia being founded in 1785, University of Vermont in 1791, East Tennessee University in 1808, University of Missouri in 1839, University of Wisconsin in 1850, and the University of Minnesota in 1851. Although in active operation, the income from the land-grant endowment and the introduction of the practical type of education as provided under the first Morrill Act proved a genuine impetus to these struggling State universities. The four other State universities endowed by their State legislatures with the land-grant funds were organized at a later period, the States being Territories at the time of the original passage of the act. Six States conferred the endowment upon agricultural colleges already organized and operating, four of which were the Michigan State College established in 1855, Maryland Agricultural College in 1856, Iowa Agricultural College in 1858, and the Pennsylvania Farmers' High School in 1855, its name being then changed to the Agricultural College of Pennsylvania. It has already been pointed out that these colleges were the forerunners of all the agricultural and mechanic arts colleges created under the first Morrill Act and were the first of their kind in America.[5] The other States designating State-controlled agricultural and mechanic arts colleges to receive the benefit of the endowment were New Mexico and South Dakota. In both of these cases, the colleges were organized while these States were still Territories, South Dakota not receiving the Federal grant until 1889 when it assumed statehood and New Mexico in 1898.

The States that adopted the plan of making private universities and colleges the beneficiaries of the land-grant endowments created under the first Morrill Act were Connecticut, New Hampshire, New Jersey, Oregon, Rhode Island, and South Carolina. In the case of

[5] See Part IX, Agriculture, for more complete history of early agricultural colleges.

Connecticut the act was accepted in 1862 and in the following year the annual interest was conferred upon the Sheffield Scientific School at Yale University. The State, however, decided to organize its own land-grant institution in 1881 and established the Storrs Agricultural College, the name of which was later changed to the Connecticut Agricultural College. Income from the Federal grant was transferred from the Sheffield Scientific School to the new State college, but not without legal difficulties and until damages amounting to $154,000 had been paid by the State to Yale University. Through an arrangement made with Dartmouth College for the conduct of an agricultural and mechanical college, New Hampshire granted this private institution the annual yield from the land-grant endowment in 1866. No change was made until 1903 when a State university was organized at Durham and became the State's land-grant institution, the organization being removed from Dartmouth College and the income from the endowment withdrawn from it. Rutgers University, a private college, was made the recipient of the yield from the grant in 1864 by the State Legislature of New Jersey and has continued to receive it ever since. The State of Oregon accepted the first Morrill Act in 1868 and two years later the State legislature designated Corvallis College, a private institution, as a beneficiary. In the year 1885, the Senate assumed control of Corvallis College, reorganized it as the Oregon Agricultural College and made it the official land-grant college of the State. After receiving the land grant from the National Government in 1862, Rhode Island conferred the income on Brown University on the condition that it maintain a scientific department. This private institution continued as the beneficiary until 1888 when the Rhode Island College of Agriculture and Mechanic Arts was established at Kingston by the State. Upon the withdrawal of the fund, Brown University protested, took the question into the court and received $40,000 for the surrender of its claim. At the time of the acceptance of the Federal grant by South Carolina in 1872, the State legislature was under the control of negroes and Claflin University, a private negro institution, was named to receive the income from the funds.[6] Later when the whites resumed control of the State government, a State-controlled land-grant college was organized under the name of the Clemson Agricultural College in 1889 as a result of a trust left by Thomas G. Clemson.

It is evident from this brief review that notwithstanding the various plans put into effect by the State governments for the organ-

[6] See Vol. II, Part X, Negro Land-Grant Colleges, for details of land-grant endowment conferred on Claflin University.

ization of the institutions, a State-controlled and State-supported land-grant college was finally established in every State in the Union. The first Morrill Act, therefore, was directly responsible for the creation of a nation-wide system of colleges maintained by public taxation and designed to democratize higher education and provide scientific and practical knowledge to the great mass of people.

The difficulties encountered by the States in selling the land and scrip, in creating the land-grant endowments, and in organizing the colleges were nothing in comparison with the problem of initiating and conducting them. Innumerable obstacles immediately developed in this untried venture in education. The educators placed in charge of the colleges disagreed as to the type of institution that was to be conducted. Some took the view that they were to be operated as mere trade schools with little or no attention given to higher education. It was also urged that much attention be given to blacksmithing, carpentry, and similar handicrafts. In agriculture it was proposed in some instances to devote the major part of the time of the students to actual farm work. Others insisted that their work should be devoted entirely to higher education of a new type. William H. Jordan, former director of the Maine Agricultural Experiment Station, described the situation in the following language:

> When the organization of the colleges was announced the public looked for the arrival of education as something new under the sun, an open sesame to greater prosperity, a panacea of industrial ills, and when it was announced that the courses of study in the Maine State College contained subjects previously taught in the classical institutions it was asked in public print: "Why this new college, these things are already taught?" It was charged that agriculture had been betrayed in the house of its friends and that the faculty was not in sympathy with the purposes for which the new institution was established. In addition, the arguments favoring vocational education exalted the skilled hand as an essential element in its development, a doctrine sound enough in theory but badly misapplied in practice.

There was also much discussion of the meaning of the term mechanic arts, as incorporated in the first Morrill Act. A number of the leaders of the movement who favored the establishment of colleges devoted exclusively to the teaching of agriculture, insisted that the proper interpretation of the term was "mechanic arts as applied to agriculture." Others took the position that "mechanic arts" meant engineering, and still others gave it the broad meaning of trade education.[7] So great was the misunderstanding that an appeal was made to Mr. Morrill, himself, to explain his real intent in promoting the passage of the act. In 1867, Mr. Morrill was invited

[7] See Part X for early history of engineering in land-grant colleges.

to the Sheffield Scientific School of Yale University, which was receiving the income of the land-grant endowment in Connecticut, to confer with the faculty on his interpretation of the law. In the following summary is presented the results of the conference from notes taken by Professor Brewer, a member of the faculty.

Mr. Morrill stated that he wished the bill to be broad enough so that the several States might use it to the best advantage. For this a wide latitude of use was necessary. The general wants and local conditions were very different in the different States and for the best use of this fund there must be much variety allowed to the details, although all the colleges should be the same in spirit and essentially of the same grade, that is, colleges in which science and not classics should be the leading idea.

He did not intend them to be agricultural schools. The title of the bill was not his, and was not a happy one. A clerk was responsible for the title. He expected the schools to be schools of science rather than classical colleges; that the schools be, in fact, colleges and not institutions of lower grade, not mere academies or high schools. We asked upon this matter in considerable detail because there was much talk in some of the States of dividing the sum for lower-grade schools.

He said that the bill was purposely and carefully planned so that the old colleges might use this as an aid in expanding in the direction to give them more science teaching or that new colleges might be organized as the conditions and needs in the several States might demand. There were classical colleges enough. More science was needed in every State.

But in all he wished as a prominent feature the "useful sciences" be taught and that where the natural influences of the studies might have less tendency to draw the students into purely literary and professional pursuits. He "thought at least one college in every State should teach military science." [8]

While the controversy over the interpretation of the land-grant act and the objectives of the colleges raged, the work of inaugurating and operating them was commenced by the various States. No sooner had the colleges been started than it was discovered that no experienced teachers could be found to give instruction in the proposed new type of agricultural and mechanic arts education. It was also found that practically no scientific and technical knowledge existed upon which to base the proposed courses of instruction. Then began a period of trials and tribulations that extended over several decades. The work of most of the colleges in the beginning was of secondary grade except for the classical instruction which was borrowed from the old institutions and included in the curricula. As there were few high schools existing in the different States, students were admitted from the elementary schools and given instruction in preparatory subjects in the colleges. Pioneering conditions existed in many of the States adding to the difficulties of the struggling institutions.

[8] From A History of Agricultural Education in the United States, by Albert Charles True.

Frank S. Kedzie, dean of applied science in the Michigan State Agricultural College, gives the following description of the early days of this college:

There was never anything comparable in a State educational effort to the hardships endured by the students and faculty in those pioneer days. An early founded denominational college in the Middle West, such as Oberlin, had nothing on the Michigan State Agricultural College so far as hardships were concerned. Oberlin had the advantage of carrying forward the work with her students with a well-known and generally accepted classical curriculum. At Michigan State Agricultural College there was doubt from the beginning as to what studies should be offered, how long the student should remain under instruction and whether a degree should finally be granted him. Upon one point was there general agreement—the student should be required to work with his hands under the instruction of men who had had no previous teaching experience to guide their action, but who knew only the imperative necessity for clearing the heavily wooded land which now comprised our farm and campus. For the first 30 years the college required manual labor three hours per day from each student, the labor consisting of felling trees, grubbing swamps, building barns, fences, and bridges, in addition to milking, caring for livestock, and working with teams of oxen and horses—all this was an essential part of the training of the student.

An idea of the inadequacy of scientific data and lack of knowledge with which the teachers in the land-grant colleges contended in these early days when they were attempting to provide industrial and agricultural education to the masses is given in the following typical account by Prof. Isaac P. Roberts, teacher of agriculture in the Iowa State Agricultural College in 1869:

I began to tell the students what I knew about farming. It did not take me long to run short of material and then I began to consult the library. I might as well looked for cranberries on the Rocky Mountains as for material for teaching agriculture in that library. Thus, fortunately, I was driven to take the class to the field and farm, there to study plants, animals, and tillage at first hand. * * * I fell into the habit of taking the students to view good and poor farms; to see fine herds and scrub herds in the country round about, even though they had to travel in freight cars. I suppose I was the first teacher of agriculture to make use, in a large way, of the fields and stables of the countryside as laboratories. * * * One day, being short on lecture material, I went into the fields and gathered a great armful of common weed pests. Handing them around to the class I asked for the common and botanical names, and the methods of eradication. * * * This experiment provided material for a week's classroom talk and led me to place still more emphasis on field laboratory work.

Mechanic arts instruction consisted principally of shop work largely of a secondary grade. In the early history of the colleges it was associated with the labor performed by the students in connection with the agricultural courses. Later mechanical shops were established and instruction was given in the various handicrafts. Civil engineering courses were also inaugurated consisting principally of lectures and

survey work with instruments in the field. The enrollments in the new institutions were generally small. Ten years after the passage of the first Morrill Act in 1882, according to Alfred Charles True,

> There were reported to be in the agricultural and mechancial courses in Michigan, 143 students; in Pennsylvania, 130; in Maryland, 130; in Maine, 103; in New Hamsphire, 22; in Vermont, 21; in New Jersey, 67; in New York, 151; and in Rhode Island, 25. In agriculture alone West Virginia had 29; Massachusetts, 139; and Kansas, 50. In Wisconsin, 30 students in the college of arts attended lectures on agriculture. In the land-grant institutions opened after 1867, there were students in agriculture and mechanic arts as follows: In Alabama, 53; Georgia, 151; Kentucky, 181; Mississippi, 5; Oregon, 50; Tennessee, 37; Virginia, 122. In agricultural courses there were in Arkansas, 50; Delaware, 14; north Georgia, 25; Illinois, 87; Iowa, 243; and Ohio, 176.[9]

The total enrollment of the colleges just listed amounted to 2,243 as compared with 164,756 students enrolled in all branches of the land-grant institutions in 1928.[10]

Notwithstanding the discouragements in operating the colleges, the inadequacies of the educational programs offered, and the small attendance of students, the great achievement of the institutions during these pioneering days was the maintenance of the fundamental ideal of the democratization of higher education. Against an intense opposition, the new movement for scientific, technical, and practical higher education was upheld by the colleges. Dean Eugene Davenport has summarized the services rendered by them during this period of doubt and despair in the following memorandum specially prepared for this survey:

> Perhaps the greatest single service rendered by the colleges in the early days was a sympathetic nursery for science and for the scientific spirit; that is, the inductive method of study. Sometimes I have spoken of these colleges as wet nurses for science when nobody else would harbor the foundling, and the language is hardly too strong.
>
> The colleges stood like a stone wall for the education of all classes and for putting knowledge at work for the direct betterment of society in all its interest, farmers particularly, as against the idea of an educated minority constituting an aristocracy of learning and leadership.
>
> That such public-supported institutions are by nature public-service institutions gradually developed as logic corollary to the reason for their existence. The idea that research, education, even formal, is mainly for the public welfare in which the student, instead of being the end product of all educational effort, is a means to an end, gradually evolved as the logical, if not the inevitable consequence of publicly supported institutions of higher learning.
>
> This general idea in the early period was often expressed as the "new education," a composite term intended to include science, education at work as applied to all the affairs of man, and the education so far as possible of all classes, trades, and professions. I will not say that all of these points stood

[9] A History of Agricultural Education in the United States, pp. 117 and 118.
[10] See Part IV, Work of the Registrar.

out at the time, in fact, none of them did very clearly, except actual studies in science. But as I now see the perspective, these were the eventualities whose foundation was laid back there.

In the meantime the colleges notwithstanding the hardships of the pioneering period commenced to make progress. While scientific instruction for a time consisted only of lectures, gradually laboratories were established for the conduct of experiments in practical sciences, shops were erected for practical instructon in the technicalities of vocational and mechanic arts, and actual crop and soil experimentations were inaugurated on the college farms. The instructors in agriculture particularly realized that a body of scientific knowledge for the teaching of agriculture would have to be created and they concentrated upon systematic experimental work, the results of which were utilized in the classrooms. With the development of agricultural research in the colleges, although at first conducted in a small way and applicable only to local soil and climatic conditions, the possibility of the tremendous advantage of further experimentation on an extensive scale was soon realized. A number of States proceeded to establish agricultural experiment stations at the colleges, the results of which were disseminated among the farmers through bulletins, circulars, and handsheets. The stations became popular throughout the country and a widespread clamor arose for aid from the Federal Government. The original idea of the democratization of higher education was expanding. Direct service in the form of actual scientific knowledge was to be furnished to the farming classes.

As early as 1883 bills were drafted and introduced in Congress providing for Federal aid in the establishment of an experiment station in every State in the Union. It was not until 1887, however, that the Hatch Act was finally enacted into law. Representative William H. Hatch, of Missouri, chairman of the House Committee on Agriculture, was the author of the measure. Senator J. Z. George, of Mississippi, also presented a similar bill in the Senate. As in the case of the first Morrill Act, the Senate measure was passed first and was later accepted by the House upon the recommendation of Representative Hatch in the place of his own bill. President Cleveland signed the act in March, 1887. As a result of the law, the greatest national system of agricultural experiment stations in the history of the world came into existence. It provided that a station should be established in every State in the Union preferably as a part of the land-grant college, although separated stations were permitted.[11] With this enactment the functions of

[11] See Vol. II, Part VIII, Research, for further details of early history and of establishment of Agricultural Experiment Stations.

the institutions were expanded to include not only residence instruction but also research for the benefit of the agricultural industry.

The Hatch Act contained three principal provisions, the first describing the type of work to be performed by the stations, the second providing for general supervision over them by the Department of Agriculture, and the third for the dissemination to the farmers of the scientific knowledge obtained through experimentation. According to the first provision, the general purpose of the stations was to promote scientific investigation and experiments into the principles and application of agricultural sciences but the specific type of work was also outlined as follows:

> That it shall be the object and duty of the said experiment stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies of the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under the varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soil and water; the chemical composition of manures, natural and artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective States and Territories.

The second provision dealing with the supervision of the work by the Department of Agriculture contained the following language:

> That in order to secure, as far as practical, uniformity of methods and results in the work of said stations, it shall be the duty of the United States Commissioner (now Secretary) of Agriculture to furnish forms, as far as practicable, for the tabulation of the results of investigation or experiments; to indicate, from time to time, such lines of inquiry as to him shall seem more important, and in general, to furnish such advice and assistance as will best promote the purpose of this act.

Of vast importance was the third provision providing for the dissemination of the results of the research to the agricultural industry thus assuring a direct public service. In order that there might not be any possibility of this provision not being carried into effect, the privilege of sending the literature of the stations through the mails under the Government frank was extended. The part of the law covering the subject was as follows:

> That bulletins or reports of progress shall be published at said stations at least once every three months, one copy of which shall be sent to each newspaper in the States or Territories in which they are respectively located, and to such individuals actually engaged in farming as may request the same and as far as the means of the stations will permit. Such bulletins or reports

and the annual reports of said stations shall be transmitted in the mails of the United States free of charge for postage, under such regulations as the Postmaster General may from time to time prescribe.

The act appropriated from the National Treasury the sum of $15,000 annually for the maintenance of each station conditional upon legislative assent by the different States. While the subsidy of the Federal Government was not large, it was the great stimulus for creating an experiment station in every State and for further placing an obligation upon the State governments for their support through public taxation.

With the gradual growth of the colleges, the new type of resident instruction commenced to meet with popular favor and to command a greater respect in the higher educational field. Definite programs of study and well-organized curricula focused around the practical application of the sciences to the industrial problems of the Nation were adopted and offered in the institutions. Enrollments of students increased. Finally, in 1890, it was decided to make a new appeal for Federal aid, the funds to be used for the further development of the democratized higher education. Mr. Morrill, who as representative in the lower house of Congress sponsored the first Morrill Act, had now become a United States Senator from Vermont and undertook the task of securing additional assistance for the colleges. In 1890 he introduced his second land-grant college bill in the Senate which provided for the appropriation of $25,000 annually by the Federal Government from the proceeds of the sales of public lands for the support of the colleges. Under the terms of the measure the institutions were to receive $15,000 in 1890 with an additional sum of $1,000 each succeeding year for the 10 years when the annual appropriation was to amount to $25,000. The law specifically provided that the Federal funds were to be expended only for instruction in "agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic sciences with special reference to their application to the industries of life and to the facilities for such instruction." [12] A particular feature of the bill was that there was to be no racial distinction between students in the colleges but that separated land-grant colleges for negroes might be organized. The result of this provision was that negro land-grant colleges were established in all of the Southern States.[13] The second Morrill bill after being amended passed the Senate unanimously in June, 1890, and the House of Representatives by a vote of 135 to 39 in August. It was signed in the same month by President Harrison.

[12] Second Morrill Act, 1890.

[13] See Vol. II, Part X. Negro Land-Grant Colleges.

In the course of the next few years the agricultural stations grew rapidly. Much of the research conducted by them was especially adapted to their particular States. The accomplishments proved of inestimable value to the farmers. It soon became apparent that the experiment stations were not only a tremendous asset to the agricultural industry in the States, themselves, but also to the Nation as a whole. But the work of the stations had been devoted largely to the experimentation connected with the verification of principles and truths already fairly well established. The time had arrived for original research into entirely new truths. To prosecute such work, the facilities of the stations were inadequate and the funds for the employment of trained specialists in the various fields of agriculture were lacking. The situation became so acute that an appeal was made to the Federal Government for increased support. Henry C. Adams, member of the House of Representatives from Wisconsin, undertook the task of securing the enactment of a law giving additional aid to the stations. He introduced a bill for this purpose in Congress in 1904, but it made no progress. In the following session, Mr. Adams again presented his measure, which was favorably reported by the House Committee on Agriculture in January, 1906. Within a short time it passed both the House and Senate unanimously and was signed by President Roosevelt in March, 1906.

The Adams Act provided for the appropriation of $5,000 in 1906 to each agricultural experiment station with an increase of $2,000 annually for five years until a maximum of $15,000 was reached. With the new subsidy under this act added to the $15,000 already received under the original Hatch Act, the support of the agricultural experiment stations by the Federal Government now amounted to $30,000 annually. The additional funds, however, were to be utilized exclusively for original researches, the act specifically stating that they were to be "applied only to paying the necessary expenses of conducting original researches or experiments bearing directly on the agricultural industry of the United States, having due regard to the varying conditions and needs of the respective States and Territories."[14] As in the case of the other acts, the grant was made conditional upon its acceptance by the legislatures of the States.

In the beginning of the twentieth century public interest became aroused to the advantage of establishing industrial, vocational, and agricultural instruction in the secondary and elementary schools. As a result manual arts, nature study, home gardening, and similar courses of practical studies were introduced into the public schools. It was necessary to train teachers for the work and the land-grant colleges were called upon to perform this function. In many of

[14] Adams Act, 1906.

the institutions teacher-training courses in mechanic arts and agriculture had been inaugurated to meet this need and were being successfully conducted, but the growing activities of the colleges and their enlarged enrollments made it difficult to secure effective results with the insufficient funds available. It was therefore necessary to seek further assistance from the Federal Government. Through an amendment made to the appropriation bill of the Department of Agriculture in 1907 by Senator Knute Nelson of Minnesota, it was proposed that an additional $25,000 be appropriated annually by the Federal Government for the support of the colleges. The measure, known as the Nelson amendment, provided that $5,000 should be appropriated the first year and $5,000 additional for the ensuing four years until the total annual sum reached $25,000. Its terms were practically identical with the provisions of the second Morrill Act with the exception that the colleges were given the right to "use a portion of the money for providing courses for the special preparation of instructors for teaching the elements of agriculture and mechanic arts."[15] The amendment upon being presented by Senator Nelson met with approval in the Senate, but difficulty was encountered in the House of Representative where it was first rejected. Later after considerable debate, however, it was adopted by a substantial majority. President Roosevelt approved the act in May, 1907.

In the gradual evolution of the idea of the democratization of higher education, it soon developed that women had been entirely omitted from the scheme. With the modern movement for the full recognition of women on the same basis as men in the social, industrial, business, and governmental affairs of the Nation, a demand was made that they be included in the program of the land-grant colleges. Through the scientific research conducted by the institutions, it was soon found also that the results of these investigations were directly applicable to food and nutrition of the human being. The possibilities of offering courses of instruction on the scientific preparation of foods in the home developed. At the same time it was realized that through the introduction of practical instruction in other phases of domestic science and household economy, the land-grant colleges would be enabled to enlarge the scope of their work to include women in the great movement of democratized higher learning. As early as 1875 the Iowa State Agricultural College and the Kansas State Agricultural College were offering courses in cooking and sewing with some lectures on the chemistry of food and nutrition. Other land-grant institutions inaugurated similar courses. Later when the State

[15] Nelson amendment, 1907.

legislatures began to make larger appropriations for the maintenance of the institutions and it became evident that they were to depend upon public taxation for their support a general demand was made that the colleges become coeducational, that women be admitted on the same status as men, and that instruction be provided to prepare them for home and domestic duties. Alfred Charles True describes the situation as follows:

> In 1890 only four land-grant colleges had departments of home economics, namely, those in Kansas, Iowa, Oregon, and South Dakota. In the next 15 years such departments were organized in 18 of the land-grant colleges for white students. With the exception of the institutions in Connecticut and Tennessee these colleges were in North Central and Western States.[16]

An important impetus to the development of home economics instruction for women in the land-grant institutions came in 1910 with the action of the American Association of Agricultural Colleges and Experiment Stations in the appointment of a committee to prepare a 4-year course in home economics. This committee outlined a curriculum, which was later adopted by many of the institutions already offering courses for women and by additional land-grant colleges that had not previously included home economics in their programs. But the greatest stimulus that was to make home economics instruction a permanent part of the educational system of the land-grant colleges was to come later.

As is evident from the preceding review, the activities of the land-grant colleges had been confined chiefly to resident instruction and to agricultural research. During the first decade of the twentieth century a number of institutions adopted the policy of developing various forms of extension and adult education, such as lectures by their instructors to gatherings of farmers, speeches at county fairs and farmers' institutes. As a result of these irregular and desultory educational activities, the plan was conceived of an organized and systematic direct service to the great mass of rural people in connection with their immediate practical problems. The outgrowth was the third great epoch-making event in the history of the land-grant colleges, the enactment by Congress of the Smith-Lever Extension Act. It had already become evident that the institutions could not reach the mass of industrial classes and the rural populations through resident instruction. Only a limited number of young men and women could attend college. But the college could be sent to the people. Instruction could be given not by the routine processes of the classroom, but through practical teaching conducted by representatives of the institutions who would actually live in the local communities and

[16] True, Alfred Charles. A History of Agricultural Education in the United States, p. 268.

whose business it would be to aid the farmers and their families in the problems of agriculture and homemaking confronting them. The plan presented the opportunity of providing education to great multitudes of people, of developing better agriculture, of advancing farming methods and finally of improving home and community life. Although it was contrary to the cherished academic tradition of higher education with its admission requirements, class attendance, and college credits for all students receiving instruction, the idea of democratization of higher education conceived in the original land-grant college movement would find fuller realization in this comprehensive plan of direct public service.[17] A particular phase of the plan was that women were for the first time recognized and home economics instruction was to be furnished them.

Such an undertaking could only be accomplished through the expenditure of large annual sums. The creation and maintenance of a vast organization of representatives of the colleges in each of the counties in the different States would involve immense outlays. The Federal Government took the initiative by offering to appropriate half of the funds necessary for the support of the enterprise, while the other half was to be provided either by the States, counties, colleges, or through individual donations by residents of the State. By this acton the States were stimulated to cooperate in financing the plan. Representative Asbury F. Lever, of South Carolina, introduced a bill in the House of Representatives covering the proposed new type of extension education in 1912. At the same time Senator Hoke Smith, of Georgia, presented a similar measure in the United States Senate. Although opposition developed to the granting of further Federal subsidies and a number of amendments were made to the bill, it was finally passed by both houses of Congress and became a law in May, 1914, when President Wilson affixed his signature to it. The Smith-Lever Act, which was to have the profound effect of bringing millions of people into direct contact with the land-grant colleges, described specifically the cooperative extension that was to be performed by the institutions in the following terms:

> That cooperative agricultural extension work shall consist of the giving of instruction and practical demonstrations in agriculture and home economics to persons not attending or resident in said colleges in the several communities, and imparting to such persons information on said subjects through field demonstrations, publications, and otherwise; and this work shall be carried on in such manner as may be mutually agreed upon by the Secretary of Agriculture and the State agricultural college or colleges receiving the benefits of this act.[18]

[17] See Vol. II, Part VII, Extension Services, for further details of Smith-Lever extension.
[18] Smith-Lever Act, 1914.

To meet the expense, the sum of $480,000 for each year was appropriated out of the Federal Treasury, $10,000 of which was to be paid annually to each State provided the legislature assented to the terms of the new law. The act further appropriated an additional sum of $600,000 for the fiscal year following, and for each year thereafter for seven years an additional sum of $500,000, and for each year thereafter there was permanently appropriated the sum of $4,100,000 in addition to the original sum of $480,000. The additional sums were to be paid to each State in the proportion which their rural population bears to the total rural population of all the States. The provision of the act which placed the payment of the cost upon a 50-50 per cent basis was as follows:

> That no payment out of the additional appropriations made herein provided shall be made in any year to any State until an equal sum has been appropriated for that year by the legislature of such State, or provided by State, county, college, local authority, or individual contributions from within the State, for the maintenance of the cooperative agricultural extension work provided for in this act.[18]

The colleges were required not only to submit plans for the extension work to the Secretary of Agriculture for his approval before the Federal funds were available for expenditure, but they were also to arrange with the Secretary of Agriculture for a definite organization for carrying on the work. Within a short time after the enactment of the law, a memorandum of understanding was drawn up and signed by the Secretary of Agriculture and the presidents of 46 land-grant institutions. The memorandum provided for the following plan of conducting the new cooperative extension service:

> First. That the State shall organize and maintain a definite and distinct administrative division of the college for extension work.
>
> Second. That the head of this division, commonly called extension director, shall administer all the extension work in the State as the joint representative of the college and the department.
>
> Third. That all funds for extension work in agriculture and home economics shall be expended through such extension divisions.
>
> Fourth. That the department shall cooperate with the extension divisions of the colleges in such work done by the department in the States.[19]

All of the States accepted the provisions of the act through their legislatures. Within a short time the new type of cooperative extension was organized in the institutions. Agricultural and home demonstration agents were appointed in many of the counties in the different States. Practical education in agriculture and home economics was carried from the colleges to the people.

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[18] Smith-Lever Act, 1914.

[19] True, Alfred Charles. A History of Agricultural Education in the United States. P. 289.

With the enactment of the Smith-Lever law, the land-grant college had been developed into a distinctive institution that defined its character and function in terms different from those of the ordinary college or university. It afforded resident instruction in the practical sciences, industrial arts, business, engineering, agriculture, teacher training, and liberal arts. It conducted research into every phase of agriculture through its experiment station. It provided demonstration and instruction in agriculture and home economics to citizens residing in every corner of the State. The land-grant college became increasingly an active agency in the economic, industrial, and social advancement of the Nation. It became a great educational force in the utilization of the physical resources of the country. Higher learning was no longer confined to the narrow limits of the classics, letters, and cultural arts. The monopoly of learning that once existed in the early days of the American Republic had vanished.

In the succeeding years, other important Federal enactments were made giving financial aid to the land-grant colleges and affecting their educational programs. Congress passed the Smith-Hughes Act in 1917, providing for the promotion of vocational education in agriculture, trades, home economics and industrial subjects and for the training of teachers in these subjects. The Nelson amendment of 1907, which furnished funds to the land-grant institutions for the preparation of teachers in the elements of agriculture and mechanic arts, was the forerunner and in a sense the real inspiration for this new law. Under the terms of the Smith-Hughes Act a National Board for Vocational Education was created and in each State a local board was established. The local boards with the approval of the national board were authorized to select the colleges in their States where teachers were to be trained in vocational subjects. As a result, the land-grant colleges have been chosen in 36 States to conduct this work and receive incomes in varying amounts from the Federal Smith-Hughes appropriations. The amount of funds for teacher training furnished by the National Government is shown in the following quotations from the act:

> That for the purpose of cooperating with the States in preparing teachers, supervisors, and directors in agricultural subjects and teachers of trade and industrial and home economics subjects, there is hereby appropriated for the use of the States for the fiscal year ending June 30, 1918, the sum of $500,000; for the fiscal year ending June 30, 1919, the sum of $700,000; for the fiscal year ending June 30, 1920, the sum of $900,000; for the fiscal year ending June 30, 1921, the sum of $1,000,000. Said sums shall be allotted to the States in the proportion which their population bears to the total population of the United States, not including outlying possessions, according to the last preceding United States census:

Provided, That the allotments of funds to any State shall not be less than a minimum of $5,000 for any fiscal year prior to and including the fiscal year ending June 30, 1919, nor less than $10,000 for any year thereafter. And there is hereby appropriated the following sums, or so much thereof as may be needed, which shall be used for the purpose of providing the minimum allotment provided for in this section: For the fiscal year ending June 30, 1918, the sum of $46,000; for the fiscal year ending June 30, 1919, the sum of $32,000; for the fiscal year ending June 30, 1920, the sum of $24,000; for the fiscal year ending June 30, 1921, and annually thereafter, the sum of $90,000.

Another important Federal enactment expanding the type of research to be conducted by the agricultural experiment stations and providing additional annual subsidies to defray the cost was the Purnell Act of 1925. The measure was sponsored in Congress by Representative Fred S. Purnell, of Indiana. Its principal feature was that the expenditure of the funds was limited to the specific purposes outlined as follows:

The funds appropriated pursuant to this act shall be applied only to paying the necessary expenses of conducting investigations or making experiments bearing directly on the production, manufacture, preparation, use, distribution and marketing of agricultural products, and include such scientific researches as have for their purpose the establishment and maintenance of a permanent and efficient agricultural industry, and such economic and sociological investigations as have for their purpose the development and improvement of the rural home and rural life, and for the printing and disseminating of the results of said researches.[20]

For the first time research in the fields of rural economics, sociology, and home economics was emphasized as a part of the program of the agricultural experiment stations. The annual support of the stations by the Federal Government was increased $30,000 to $90,000 annually by the Purnell Act. It provided for an increase of $20,000 for the year 1926 with a further increase of $10,000 annually until 1930 when the appropriation was to continue at this figure every year thereafter. The stations are now receiving their full quota of $90,000 annually from the Federal Government, but the research into economic, sociological, and home economics problems has not yet had time to produce any widespread effects in these fields.

The latest measure increasing Federal funds to the land-grant colleges was the Capper-Ketcham Act, which was passed by Congress and approved by President Coolidge in May, 1928. It provided additional appropriations for cooperative extension in agriculture and home economics under the terms of the original Smith-Lever Act. An additional $980,000 annually was appropriated to further develop the work of which $20,000 was to go to each State and the Territory of Hawaii annually conditional upon their acceptance of the provisions of the law. There was also appropriated for the fis-

[20] Purnell Act, 1925.

cal year following that in which this appropriation became available and for each subsequent year the sum of $500,000. In order that the colleges may receive the benefits of the additional funds under the Capper-Ketcham Act, the amounts must be matched either by the States, counties, or colleges or through local contributions in the States. A special provision of the act stipulated that 80 per cent of the appropriations should be utilized for the payment of salaries of county extension agents to develop the cooperative extensive system in agriculture and home economics with men, women, boys, and girls.

The foregoing historic sketch has been limited almost entirely to the influences of the National Government in the development of the land-grant colleges. Most of them actually came into existence through the stimulus of Federal law. The Congress of the United States originally prescribed the type of college that was to be operated and the character of education that was to be provided. During the entire period of their development the major educational policies of the institutions have been based upon the provisions of Federal statutes making appropriations to assist in their support. It must be remembered, however, that the States are primarily responsible for defraying the principal costs of their maintenance and for stimulating their growth into leading institutions of higher education. To the people of the States who have carried the burden of taxation and to the broad vision of local leadership developed within the States do the land-grant colleges chiefly owe their success.

PART II.—CONTROL AND ADMINISTRATIVE ORGANIZATION

Chapter I.—State Relationships

The land-grant college or university is essentially a State institution. Although in most cases originally established by public land grants from the Federal Government and at present the recipient of subsidies from this source, it is distinctly a State-operated establishment and an integral part of the public educational system of the State. Its organization and its activities are defined either by the State constitution or by the statutes enacted by the State legislature. Its physical plant is public State property.

Because of their distinct purposes and functions the land-grant colleges and universities at the time of their foundation were segregated from the regular State governmental organizations and departments. A separate board involving a virtual trusteeship was created in most cases to govern and administer them subject to the provisions of the general State laws and to the limitations of the State appropriations made for their support. The purpose of this isolation was to take their management out of the hands of the changing political administrations of the regular State governments and to free them from the influence and control of the politically constituted State departments, offices, and agencies. Service on the governing boards has carried the obligation that trusteeship implies. The members generally serve without pay or remuneration.

The purpose of this chapter is to show the relationships existing at present between the institutions and the State governments. State agencies and officials exercise a considerable degree of direct and indirect control over the administration and supervision of the business activities of the colleges. This control has a direct effect on the academic functions of the institutions. Recent reorganizations of State governments, the creation of State budget systems, the establishment of State departments of administration and control, the extension of the power of State agencies over disbursements, purchasing, printing, travel, auditing, accounting, and other functions of the institutions have in many instances tended to further limit or

actually to supersede the authority of institutional administrative officers and of institutional governing boards.

The authority of the governor of the State over the land-grant colleges is both direct and indirect. As head of the executive branch of the State government he has the power of veto over all State appropriations made for the support of the institutions. By virtue of his office the governor may also make such recommendations to the State legislature concerning the land-grant college or university that he may deem advisable. These powers are general and applicable to every State. But the governor is often in a position to exercise direct supervision over the institutions, participate in their government, and partially, if not wholly, to influence questions of policy in a number of instances.

According to the returns received from 44 colleges, the governor of the State serves as regular president or chairman of the governing body in 3 cases, as ex officio president in 2, as a regular member in 2, and as an ex officio member in 13.

While his responsibilities as head of the State government prevent the State executive from exercising his prerogatives as head or member of the governing board in many of the States, there are others where he attends the meetings more or less regularly and takes part in the proceedings of the body. In one institution, the governor is the president of the corporate body governing the college, signing all official business documents, and presiding at all sessions. Members of the governing bodies are appointed by the governor in most of the States, either with or without the consent of the State senate, but as this relationship will be amplified in the part of this report that deals with the governing board it is not necessary to discuss it in detail at this point.

Through the recent creation of budget systems in the States, the governor has been given increased powers over the finances of the land-grant colleges. In practically all of the States he serves either as the chief budget officer or has the power to change, alter, and revise the budget before its final submission to the legislature. As the budget contains the estimates of the requirements of the land-grant institutions, the State executive is in a position to affect their development by increasing or decreasing requests for funds to be used for their support. The laws of a number of States confer specific powers on the governor over the business, financial, and administrative affairs of the land-grant institution. The entire question of the State budget and its relationship to the institutions will be discussed later.

There is one college where the governor passes on manifests for reimbursement of expenditures of State funds by the institution; another where he controls release of State appropriations to the university; a third where he has authority to provide increased funds for the experiment stations; and a

fourth where he approves all vouchers covering State regulatory funds which go to the college for its support. In one State the governor is chairman of the State printing commission which controls the institutional printing. Four institutions must first receive the approval of the governor before any of the members of their staffs are permitted to travel out of the State. The authority of the governor in one State includes the issuance of deficiency warrants upon State funds for expenditures made by the land-grant college, and in another the governor is empowered to authorize replacement from State insurance funds of property damage by fire or tornado at the institution. The State executive is a member of the board of investment of the permanent university fund in one State; issues commissions for college officers in another; appoints one-third of the board of visitors in a third; fills vacancies occurring in the governing board between one general election and another in a fourth, and controls the purchase of automobiles by the university in a fifth.

In addition to the powers exercised by the governor, the auditor of State has been vested with considerable control over the financial affairs of the land-grant institutions. The amount of his authority varies in the different States, but reports indicate that it comprises complete supervision of the revenues and disbursements of a number of institutions.

There are six States where the State auditor is charged with the auditing of all vouchers and the signing of all warrants covering every expenditure made by the institutions. In another case all vouchers except those in payment of labor must be submitted to the auditor for approval. The State auditor executes warrants for the payment of all claims against State funds of 10 colleges and issues warrants to the institutional treasurers for State appropriations or mill-tax revenues in 8. Other specific powers over the land-grant institutions have been conferred upon him. As a member of the budget commission he participates in the preparation of the State budget estimates for the support of the college in one State. The auditor is a member of the State board of finance which has control of questions involving the use of State appropriations in another State. He is vested with authority to supervise and determine the methods of accounting used by one college. According to the reports, he makes annual audits of the books and accounts of 10 institutions; audits expenditures of State appropriations only of 1; audits specific funds of 1; while in the case of another institution copies of all voucher registers and receipt registers must be filed with the State auditor. This State official is a member of the board of investment of the university fund and has authority to lease unsold university lands of one land-grant institution.

Powers exercised by the State treasurer amount to virtual control of the funds of a number of the colleges. The State treasurer is the actual treasurer of six institutions. In these cases he is custodian of all the moneys and has responsibility for their receipt and disbursement, except in one instance where the local business officer handles residence, dining halls, and athletic funds. In 15 other institutions he receives current funds and pays all general bills on requisition either from the institutional treasurer or on warrants issued by the State auditor. Remittances are made monthly to him by some colleges while in others they are forwarded as collected. The State treasurer handles only State funds in 3 States and his connection with the land-grant institutions is limited to sending to the institutional treasurers checks covering State appropriations or mill-tax revenues in 10 others. As a member of the State budget commission, this State official exercises jurisdiction over the estimates for

appropriations of one college. In two States he is official custodian of the land-grant endowment and other trust funds of the land-grant institutions. There are two cases in which the State treasurer receives the trust funds of the colleges and invests them on order of the boards of trustees, while in one he is responsible for auditing the Hatch-Adams and Smith-Lever funds expended by the college. Two institutions report that they have no relationship whatever with the State treasurer.

The official relations of the State attorney general with the land-grant colleges are important. While in some States he merely serves in an advisory capacity to interpret the State laws affecting the institutions, in other States he handles all legal matters.

An examination of the reports disclose that the attorney general construes the laws upon request in the case of 22 colleges; that he acts as legal advisor and counsel in 10; and is the attorney of the board of trustees in 1. In 10 States he defends the institutions in all litigation directed against them. The attorney general in two States approves the bonds of officers of the colleges and in two others examines and approves contracts made by the governing bodies. The law in several States has conferred special authority upon the attorney general in the case of certain institutional affairs. In one State he is charged with the enforcement of the proper application of moneys appropriated for the support of the university; in another he is a member of the State printing commission that passes on institutional printing; in a third he has authority jointly with the governor over the release of moneys from the special State insurance fund to replace property destroyed at the institution; and in a fourth he is a member of the State emergency board which in emergencies may provide funds for the institution. The attorney general is an ex officio member of the board of trustees in one institution.

Contacts between the land-grant colleges and the secretary of state are limited in most of the States, although in some instances he exercises considerable authority over their financial affairs. Twenty-five institutions report that they have no relation with this State agency.

In one college, however, the secretary of state maintains all the records of university funds showing credits and debits, approves vouchers, writes checks, and forwards them to the State treasurer for entry and signature. In another institution he passes on and approves each voucher drawn in payment against its funds and attests its warrants. The secretary of state is a member of the board of regents of a third college and audits all claims against State funds, while in a fourth he keeps the records of State appropriations and expenditures thereof. As a member of the budget commission the secretary of state has authority over the budget estimates of the land-grant institution of one State. The institutional printing in the case of two other colleges is under his partial supervision as a member of the State board of printing. Amendments to the university charter must be filed with the secretary of the state in one State and fidelity bonds of college officers in two. The secretary of state issues commissions to the members of the board of trustees of two land-grant institutions, while he is an ex officio member of the governing body in another. In one State the annual report of the chancellor of the university is deposited with this official.

The State departments of education have more or less academic influence upon the land-grant institutions in practically all the States. As the agency which grants teachers' certificates, the de-

partment indirectly prescribes the minimum standards of curricula that are offered in the schools of education of the institutions. The State department of education is also the official accrediting agency of the high schools in the States from which students are admitted to the institutions. In some cases, the department conducts examinations and accredits the colleges of the State. There are a number of States where the State department of education has certain supervisory powers over the institutions or over some of their elements. The State board of education is the governing body of 3 land-grant colleges, and the State superintendent of education is ex officio member of the governing boards of 23. In an additional case the commissioner of education is State budget officer and makes the budget recommendations for appropriations to the institution, has supervision over its purchasing and its printing, serves as personnel officer in the classification of its employees and salaries, and has authority over appointments. The State department of education is charged with the responsibility of investigating the courses of instruction offered in the land-grant institution in one State to see that they comply with provisions of the State laws and in another State the department is authorized to make occasional surveys of the institution. Periodical reports of the executive of one land-grant institution must be sent to the department for transmission to the State legislature. The presidents of two institutions are ex officio members of the State board of education, while in one the president serves as a member of the department's examiners of public schools.

The preceding outline has presented the relationships of the land-grant institutions to the various State officials and State departments. In many instances the contacts between the officers of the State governments and the institutions are merely nominal and transitory. In others they represent the routine machinery set up by the State legislature for the expenditure of State appropriations made to the land-grant colleges. In still others, however, the State officials exercise actual control and supervision over certain affairs of the institution which transcend the authority of the institutional governing board. Separate governing bodies have not been created for the management of the land-grant institutions in 6 of the 44 States from which reports were received. In these cases regular departments of the State governments are vested by law with the administration of the institutions. The University of Idaho, Iowa State College, and Montana State College are governed by the State board of education, a regular department of the State Government. The Michigan State College, Oklahoma Agricultural College, and the Colorado Agricultural College are under the management of the State board of agriculture, also a regular part of the State governmental organiza-

tion. In most of these cases the financial affairs of the institutions are handled through the regular State channels. In two States where the State board of education governs the land-grant institutions, its authority extends also to the government of all the other higher educational institutions of the State. In another State the board is charged with the government of all the eleemosynary institutions as well as the institutions of higher education.

An examination of the reports shows further that joint State boards have been established in six other States for the government of the State institutions, including the land-grant colleges.

In one State the board is known as the State board of control, in another as the State board of administration, in three as the State board of regents, and in one as the board of trustees. The University of Arizona is administered by a State board of regents which governs all the other higher educational institutions of the State. The University of Florida is under the government of a State board of control which in addition to managing the other higher educational institutions also governs the State's school for the deaf and the blind. The State boards of regents which administer the affairs of the Kansas State Agricultural College and the South Dakota State College govern the other State higher educational institutions while a similar control is exercised by the board of trustees of the Mississippi Agricultural and Mechanical College. In the case of the North Dakota Agricultural College, its governing board under the title of the State board of administration has governing powers over 15 other institutions, including the State university, State teachers colleges, schools of science and forestry, hospitals for deaf, blind, and insane, State penitentiary, training school, and tuberculosis sanitarium. As the central boards of control are in reality branches of the State governments, it is evident that the administration of their affairs are largely centered at the State capitols. There is one land-grant institution, the business affairs of which are handled in their entirety by a State business manager.

State Budget

The establishment of State budget systems has completely changed the methods employed by the State governments in providing funds for the support of the land-grant institutions.

Under the former arrangement State support was supplied through the enactment of general statutes setting aside specific funds for the institutions or through regular appropriation acts passed by the State legislature. Under the budget system, the land-grant institutions are not only compelled to submit requests for the State funds necessary for their maintenance, but they must also justify them to some budget agency through detailed reports, financial statements, and oral presentation. As the agency in charge of the budget is a part of the regular State government often with authority to reduce or increase the requests or estimates, control by the regularly constituted State government has been augmented more or less. The creation of State budgets has further necessitated the revision of the accounting systems and business methods of many of the institutions in order to conform to budget requirements and has resulted in important changes in administrative policy and financial

programs. In order to present a comprehensive picture of the situation, the organization and operations of the State budgets together with their relationships to the land-grant colleges will be described in some detail.

The 44 institutions reporting upon this phase of the survey indicate that budget systems have been created by law and are operating in 38 of the States. The land-grant institutions in three of these States are not under the jurisdiction of the State budget systems. In the remainder the institutions are included in the State budget system.

The plan of organization of the State budget is by no means uniform in the different States. The budget agency consists of a single official in 19 cases and of a board or committee in 16. Of the States where a single official has charge of the budget, there are 13 in which a director or commissioner serves in that capacity, 2 where the governor, with a secretary, is responsible, and 4 where the governor himself is the budget officer. In 13 of the States having a budget director or commissioner, this official is responsible to the governor in 11 and to both the governor and legislature in 2. It is obvious that the governor is the final authority over the budget organization in practically all of these States, either serving himself as the chief budget officer or having supervision over the responsible official. In the 16 States where a board or committee handles the budget, its membership consists of the governor and other principal State officials in 3 States; the governor, State officials, and chairman of the senate and house appropriation committees in four States; the governor, secretary of State, president of the senate, speaker of the house, chairman of the senate and house finance committees, and three members appointed by the governor in one State; and the State examiner of accounts, two senators, and two representatives in one State. There are two States where the governor appoints a budget committee and serves himself as its chairman, while in four others the budget board is made up of regular State officials or departments, such as the State tax commission, department of efficiency, commission of administration and finance, and chairman of the State tax commission, and auditor of public accounts. According to the reports, the budget boards or committees are responsible to the legislature in seven States, to the governor in six, to both the governor and legislature in one, and to the people in one.

The operation of the budget systems follows largely the same procedure in most of the States. Along with the other departments of the State government, the land-grant institutions are required to submit requests for appropriations with supporting data to the budget agency three months or so prior to the meeting of the State legislature. In most of the States uniform blank forms are provided for this purpose. The budget agency holds hearings and conducts investigations of the requests and has authority to approve, disapprove, or alter them. A budget is finally prepared covering the estimates of the costs of operation of all the State departments and is submitted to the regular session of the legislature with recommendations. The procedure as it affects the land-grant institutions will be analyzed in more detail.

One important question concerns the nature of the data required by the budget agencies. A special attempt was made to secure unabridged information on this subject, but 11 of the institutions failed to furnish usable information. In the case of 10 of the institutions, detailed statements concerning both receipts and expen-

ditures for the past biennium together with estimates of funds needed must be presented. The institutions of eight other States are required to submit only detailed expenditures and records showing their needs. One institution reported that it must furnish complete data on the use of all its funds. Two others in addition to filling out blank forms provided by the budget agency submit supplementary statements giving reasons for every item involving increased funds. The budget agency in two States after receiving the requests, actually visits the institutions to ascertain whether enhanced appropriations are justified. Complete salary lists must be presented by two land-grant institutions.

Another question is whether the institutions submit records of their income from Federal funds, student fees, endowments, trust funds, and other non-State sources. In many of the institutions such funds represent approximately 50 per cent of the total revenues. The budget agencies, according to the survey reports, require the submission of information covering all the items named from 27 of the institutions. There is one university which does not present data specially prepared, but refers the budget agency to its financial reports. In the case of four other institutions the income from student fees, endowments, trust funds, and other non-State sources is not included as a part of the information asked for by the budget agency, but the figures are held in readiness by the institutions for submission in the event they are requested. The State legislatures of 27 States in their final action on budget estimates consider the revenues of the institutions from these sources. Eleven land-grant institutions report that they have developed a plan of State financial support extending over a period of years that has relieved somewhat the detailed work of securing the indorsement and approval of requests by budget agencies. In the submission of budget data it is found that the institutions in 15 States are required to incorporate Federal funds received. The funds are included as a part of the total budget and deducted as paid from other sources in 13 instances. One State legislature has until recently reappropriated the Federal funds to the institution, an action entirely unnecessary under the provisions of Federal acts. In another the Federal funds are included in the budget.

A matter of vital concern to the land-grant institutions is whether opportunities are given for their officers to appear before the budget agencies to explain or define requests for funds. It is also equally important whether they are permitted to go before the legislative committees and present similar explanations where the budget agency has altered the requests and reduced the estimates. Reports indicate that in 31 States, the institutions have the privilege of appearing both before the budget agency and the legislative com-

mittees for this purpose. In two States, however, the right to go either before the budget agency or the legislative committees is denied. Two of the institutions did not furnish information on this point.

Various representatives of the land-grant institutions are charged with the responsibility of appearing before the State budget agency or the legislative committees for the purpose of justifying requests for funds. Two institutions report that this function is performed entirely by the members of the governing boards. There are 16 in which both the president and the governing board act, while in 17 others the president is the responsible official. Upon occasions when their aid is needed in supporting requests for funds, the president is accompanied by other institutional officials such as the chief business officer, deans, or other faculty members. A number of colleges forbid members of their staffs to have any contacts either with the State budget officials or members of the State legislature on budgetary matters. In some instances the boards of trustees have adopted definite regulations to this effect while in others the rule is in force although no formal action has been taken by the governing authorities. The returns show that such a policy has been adopted in 16 land-grant colleges.

Frequently reductions in estimates are made by the budgetary agents or State legislatures. The problem of whether minimum requests for funds should be presented or whether the figures should be placed on a higher basis to allow margins for reductions confronts the institutions. In an inquiry into the subject it was found that 30 colleges claim that minimum requests are submitted representing only actual needs regardless of the anticipated cuts, while 5 other colleges report that allowances are made for possible decreases. An examination into the actual cuts made by the State budgetary agents and State legislatures during the last three budget periods was conducted. Five institutions reported that no cuts whatever were made in their requests, while 17 others failed to furnish information. In the remaining 13 colleges the budgetary agency or State legislature reduced requests by varying percentages.

The reductions aggregated 55 per cent in 1 case, from 30 to 35 per cent in 1, from 25 to 30 per cent in 2, from 20 to 25 per cent in 3, from 15 to 20 per cent in 2, from 10 to 15 per cent in 2, from 5 to 10 per cent in 1, and less than 5 per cent in 1.

With few exceptions the land-grant colleges present their budgetary requests as a whole. There are six institutions, however, where separate requests are presented by special activities. Both the agricultural experiment station and agricultural extension service submit their own requests in two States, the agricultural experiment station in three, and each State college of the university in one.

The president of the land-grant institution appears before the budget agency and the legislative committees on behalf of the experiment station in one instance, while the heads of the divisions personally present their requests in the remainder.

One of the most significant effects of the establishment of budget systems upon the financial programs of the land-grant colleges has been the changes made in the methods of providing funds for their support by the States. Where the institutions formerly received their State funds in lump sums, which permitted expenditure at the discretion of the governing boards, the new arrangement in some instances provides for segregation into detailed items as submitted in the budget estimate. In such cases the colleges are handicapped by the inflexibility of the State funds and their limitation to specific purposes. According to the reports received, State appropriations are made in accordance with budget detail to 8 of the land-grant institutions and according to major classifications of the budget estimates in 13 others. The major classifications vary as to their extent. In the case of some of the colleges they include salary and wages, office expense, travel, operation, repairs, library, equipment, improvements, buildings, experiment station, and extension service, while in others the items are combined into a smaller number. Where such detailed appropriations are made, however, funds may sometimes be transferred from one item to another in emergencies, providing authority is obtained from State agencies. This situation is applicable to 11 institutions.

The power to authorize transfer of appropriations is vested with the governor in three States, with the State budget officer or committee in three, with the State board of examiners in one, with the State finance board in one, with the State emergency board in one, with the State controlling board in one, and with the State finance commission in one.

As the transfer of funds was formerly under the jurisdiction of the boards of trustees, it is evident that the authority of the State agencies tends to increase in this respect. The most advantageous method of providing State funds is through lump sums covering the items of operation and maintenance and of capital improvements.

Another question of importance is whether under the State budget systems, the unencumbered balances of State funds remaining at the end of the regular appropriation periods are carried forward and are available to the institutions for expenditure during the next fiscal year. In 25 of the States these balances are canceled. The policy in six States is to carry forward the unemcumbered balances and permit their use by the institutions. In one State the balance may be carried forward if specially requested by the institution, while in another the State legislature must reappropriate the funds. The State budget agency of four States has adopted the practice of reducing the next budget of the institutions in the event they have unen-

cumbered balances. While all the States filing returns have provided for the disposition of unexpended funds of the land-grant colleges, only 10 States have made provision for the institutions to secure additional funds in case of emergency when the legislature is not in session. In all these cases the final authority is vested in the regularly constituted officials of the State government. The governor has the power to authorize the institutions to make loans in three States and to issue deficiency certificates in one. Two States have created special emergency boards for this purpose, while the governor and his council has authority to provide emergency funds in two other States. The budget officer is the responsible agency in one State and the State board of control and finance in one.

Moneys appropriated by the States for the support of the land-grant colleges are received by them either through vouchers drawn against the funds or through the payment of lump sums at stated intervals to the institutional treasurers. Twenty-six colleges report that vouchers are drawn against State funds. In eight cases the State funds are paid to the local treasurer, the payments being made annually to two colleges, with additional amounts when needed, quarterly to one, monthly to four, and semimonthly to one. The State auditor approves vouchers for claims against State funds and issues warrants for their payment in the case of 17 colleges, the State controller of 5, the State business manager of 1, the State board of examiners of 1, and the director of finance of 1. Where the local institutional authorities handle the State funds, periodical audits are conducted in six States, constant reports on expenditures and allotments are required in one, and all duplicate bills and pay rolls must be submitted to the State auditor-general in one.

The survey attempted to ascertain what steps were taken by the different land-grant institutions in case of cuts by the State budget agencies in their requests and of insufficient legislative appropriations for their support. More economic administration of the institution and increases in the teaching loads of the members of the faculty are the adjustments most commonly made according to reports received. It was found, however, that five institutions definitely reduce enrollments when State funds are lacking. The practice of dropping courses of study has also been adopted by 16 colleges while the amount of research is curtailed in 7. Four institutions reported that when legislative appropriations are insufficient all expansive projects are arrested. Another resorts to increase in student fees, a second to reduction in the size of its staff, a third to elimination of one or two departments of instruction, a fourth to curtailing repairs and improvements in the physical plant, a fifth to discontinuance of salary increases, and a sixth to obtaining money from outside sources.

In the foregoing has been outlined the State relationships of the land-grant colleges, the authority exercised over their finances, and other contacts between the State governments and the institutions. State agencies, however, have direct supervision and control over other functions of many of the colleges, such as accounting, new construction, purchasing, printing, binding, trust funds, student fees,

and civil-service employees. In order to avoid duplication these questions have not been presented here, but are contained in another section of the survey report.[1]

On the basis of this review, it is clear that efforts to extend the active supervision of the State government over the State-supported universities and colleges have to do mainly with financial control. The movement is due principally to an effort to reduce expenditures or to introduce greater economy. In the pursuit of this purpose, major issues vitally affecting the welfare of the educational institutions may be sacrificed to the effort to save money at any cost. It is not to be understood, of course, that financial support of higher education can be considered independently from the general financial condition of the State. If the administration of the land-grant college or State university takes any other attitude toward its relationship to the State, it will most certainly be subject to reduction of its estimates by outside agencies.

Difficulty is encountered in obtaining even a relatively correct view of the relationship of the land-grant institutions to the other obligations of the State, but data were secured which show somewhat exactly the present relationship of the financing of the land-grant institutions to the total amount spent for other types of public education. It is not maintained, of course, that the existing proportion of public funds that is spent for the land-grant institutions is the correct proportion. Facts of the kind presented in the following tables should not be used as the basis for determining the proper distribution of educational income. Their chief value lies in the aid that they afford for correcting erroneous opinions and judgments concerning the support of public higher education.

The major units of public education are the elementary and secondary school system and higher education. The first includes kindergartens, elementary schools, all types of high schools, and special schools for the deaf, blind, delinquent, and similar schools. The second includes teacher-training institutions, land-grant colleges, and other public higher educational institutions, such as State universities, independent professional schools, and junior colleges. There are five main sources from which public education receives its income: The Federal, State, county, local governments, and miscellaneous sources. The first four sources are public. The fifth source includes such items as tuition, gifts, and similar funds, but in the ensuing tabulations are excluded gifts for endowment funds, receipts from residence and dining halls, student activities, departmental earnings, athletics, short-term loans, and sale of lands.

Income for public education from the Federal Government consists of two types, direct income from appropriations and indirect income

[1] Part III, Business Management and Finance.

in the form of interest on permanent school funds that have been built up both from the sale of land granted by the Federal Government and from leases on parts of this land that has not yet been sold. In the reports of income of land-grant institutions this interest on land-grant funds has always been considered as a Federal source of income, but in public-school income reports this interest has been credited to the State, county, or district holding title to the land and fund and not to the Federal sources. However, in the following data all indirect income from permanent school funds and leases on school lands for the public-school system has been considered as Federal income in the 30 States that have built their permanent funds from Federal lands. In the other 18 States that received no Federal land but created their permanent school funds from State sources, the interest is considered as State income. No effort has been made to include the income for West Point, Annapolis, war colleges, and other Federal institutions supported by public funds or income for military instruction in colleges and secondary schools as it is impossible to secure data at all complete or comparable with that for other educational institutions. The District of Columbia has also been omitted as it is not comparable as to types of sources available.

TABLE 1.—*Sources and distribution of income for public education, 1927–28*

Type of education	Federal		State		County	
	Amount	Per cent	Amount	Per cent	Amount	Per cent
1	2	3	4	5	6	7
Public-school system	[1] $27,907,441	66.07	$343,453,929	69.61	$209,193,576	98.20
Teacher-training institutions	197,420	.47	40,480,944	8.20	137,905	.06
Land-grant institutions	13,704,802	32.44	71,423,615	14.48	3,432,938	1.61
Other public colleges	429,547	1.02	38,032,235	7.71	271,087	.13
Total	42,239,210	100.00	493,390,723	100.00	213,035,506	100.00
Total to higher education	14,331,769	33.93	149,936,794	30.39	3,841,930	1.80

Type of education	Local		Miscellaneous		Total	
	Amount	Per cent	Amount	Per cent	Amount	Per cent
1	8	9	10	11	12	13
Public-school system	$1,410,995,484	99.49	$70,624,603	54.74	$2,062,175,033	89.82
Teacher-training institutions	8,000	[2]	6,014,358	4.66	46,838,627	2.04
Land-grant institutions	3,530	[3]	30,297,069	23.48	118,861,954	5.18
Other public colleges	7,188,419	.51	22,085,630	17.12	68,006,918	2.96
Total	1,418,195,433	100.00	129,021,660	100.00	2,295,882,532	100.00
Total to higher education	7,199,949	.51	58,397,057	45.26	233,707,499	10.18

[1] $6,057,045 (14.33 per cent) is from direct appropriations; $21,850,396 (51.73 per cent) is indirect income from interest on permanent school funds and leases on school lands.
[2] Less than one-tenth of 1 per cent.
[3] Less than one-tenth of 1 per cent.

Table 1 gives a distribution of all income to publicly supported education showing both the source of money and the type of education for which it is used. The public-school system receives about two-thirds of the Federal and State money and practically all the county and local money. It is interesting to note the similarity of distribution between the public schools and higher education of Federal and State money. When the Federal Government is given credit for the interest derived from the original grants of land for the public-school system, 33.93 per cent from Federal sources goes to higher education and 30.39 per cent from State sources. The land-grant institutions receive 32.44 per cent of all income derived from the Federal Government for publicly supported education, 14.48 per cent of all income from the State, 1.61 per cent of all income from the county, and 23.48 per cent of all income from miscellaneous sources. Of the $2,295,882,532 representing the entire income for publicly supported education from all sources, the land-grant institutions received $118,861,954, or 5.18 per cent.

TABLE 2.—*Sources and distribution of income for public education in 19 States having the land-grant institution separate from the State university, 1927–28* [1]

Type of education	Federal		State		County	
	Amount	Per cent	Amount	Per cent	Amount	Per cent
Public-school system	[2] $13,618,328	[2] 68.41	$97,103,327	59.64	$72,083,053	98.18
Teacher-training institutions	63,159	.32	13,179,119	8.10	37,225	.05
Land-grant institutions	5,822,125	29.24	20,219,614	12.42	1,241,617	1.69
Other public colleges	404,770	2.03	32,302,059	19.84	54,660	.08
Total	19,908,382	100.00	162,804,119	100.00	73,416,555	100.00
Total to higher education	6,290,054	31.59	65,700,792	40.36	1,333,502	1.82

Type of education	Local		Miscellaneous		Total	
	Amount	Per cent	Amount	Per cent	Amount	Per cent
Public-school system	$394,290,909	99.68	$25,903,797	49.10	$602,999,414	85.60
Teacher-training institutions	3,000	([3])	3,759,817	7.13	17,042,320	2.42
Land-grant institutions	0	0	4,391,272	8.32	31,674,628	4.50
Other public colleges	1,265,157	.32	18,706,236	35.45	52,732,882	7.48
Total	395,559,066	100.00	52,761,122	100.00	704,449,244	100.00
Total to higher education	1,268,157	.32	26,857,325	50.90	101,449,830	14.40

[1] Alabama, Colorado, Indiana, Iowa, Kansas, Michigan, Mississippi, Montana, New Mexico, North Carolina, North Dakota, Oklahoma, Oregon, South Carolina, South Dakota, Texas, Utah, Virginia, and Washington.

[2] $1,976,449 (9.93 per cent) is from direct appropriations; $11,641,879 (58.48 per cent) is indirect income from interest on permanent school funds and leases on school lands.

[3] Less than one-tenth of 1 per cent.

Table 2 is similar to Table 1, but includes only the 19 States in which there is a separate land-grant institution from the State university. The significant figures in this table are those showing the distribution of State income. About the same proportion, approximately 8 per cent, goes to teacher-training institutions, as is shown

in the table covering all the States. The land-grant institutions only receive 12.42 per cent of the State money in these 19 States, as compared with 14.48 per cent in all States. The 10 per cent less received by the public-school systems goes to increase the share of the separate State universities. Part of this loss to the public schools is made up by a larger indirect income from the Federal permanent school funds.

Table 3 shows from what sources each type of education receives its support.

TABLE 3.—*Percentage analysis of income of each type of public education*

Type of education	Source of income				
	Federal	State	County	Local	Miscellaneous
1	2	3	4	5	6
Public-school system	[1] 1.06	16.65	10.14	68.42	3.43
Teacher-training institutions	.42	86.43	.29	.02	12.84
Land-grant institutions	11.53	60.09	2.89	(2)	25.49
Other public colleges	.63	55.92	.40	10.57	32.48
Total	1.84	21.49	9.28	61.77	5.62
Total of higher education	6.13	64.16	1.64	3.08	24.99

[1] From direct appropriations 0.2937 per cent, and from indirect income, 1.0596 per cent.
[2] Less than one-tenth of 1 per cent.

The total amount of money spent by the Federal Government on public education is so small, comparatively speaking, that although two-thirds of it goes to the public-school system, this is only 1.06 per cent of the public-school income. The chief sources are local political units, that supply 68.42 per cent, and the State, that supplies 16.65 per cent. Teacher-training institutions obtain 86.43 per cent of their income from the State. The land-grant institutions receive 60.09 per cent of their income from the State and 11.53 per cent from the Federal Government on a basis of the figures presented in the table, but special attention must be called to the fact that these figures on income do not include receipts from residence board and dining halls, student activities, department earnings, athletics, loan funds, and similar rotary funds. The inclusion of such revenues would considerably reduce the proportion from both State and Federal sources, as is shown in Part III, dealing with business management and finance of the land-grant institutions. While the State has taken upon itself the major portion of the responsibility for financing public higher education, the table shows it has assumed only one-sixth of the financial responsibility for the public-school system.

In Table 4 is presented the proportion of income for each type of education secured from public sources.

TABLE 4.—*Percentage analysis of income for each type of education from public sources* [1]

Type of education	Source of income			
	Federal	State	County	Local
1	2	3	4	5
Public-school system	[2] 1.40	17.25	10.50	70.85
Teacher-training institutions	.48	99.16	.34	.02
Land-grant institutions	15.47	80.65	([3])	3.88
Other public colleges	.94	82.82	.59	15.65
Total	1.95	22.77	9.83	65.45
Total of higher education	8.17	85.53	2.19	4.11

[1] Income from miscellaneous sources is excluded from this table.
[2] From direct appropriation, 0.3 per cent, and from indirect income, 1.10 per cent.
[3] Less than one-tenth of 1 per cent.

Only public money is considered in this table, income from miscellaneous sources being entirely eliminated. The significance of the table is that the State provides 80.65 per cent of the income of land-grant institutions from public sources, as compared with 99.16 per cent furnished by the State to teacher-training institutions and 82.82 per cent to other public colleges. Of the total public money used by land-grant institutions, 15.47 per cent comes from the Federal Government, 80.65 per cent from the State government, and 3.88 per cent from local public sources. For all higher education, including teacher-training institutions, land-grant institutions, and other public colleges, the State furnishes 85.53 per cent of the total income from public sources, exclusive of income from miscellaneous sources.

TABLE 5.—*Sources and distribution of income for publicly supported higher education*

Type of education	Federal		State		County	
	Amount	Per cent	Amount	Per cent	Amount	Per cent
1	2	3	4	5	6	7
Teacher-training institutions	$197,420	1.37	$40,480,944	27.00	$137,905	3.59
Land-grant institutions	13,704,802	95.63	71,423,615	47.64	3,432,938	89.35
Other public colleges	429,547	3.00	38,032,235	25.36	271,087	7.06
Total higher education	14,331,769	100.00	149,936,794	100.00	3,841,930	100.00

Type of education	Local		Miscellaneous		Total	
	Amount	Per cent	Amount	Per cent	Amount	Per cent
	8	9	10	11	12	13
Teacher-training institutions	$8,000	0.11	$6,014,358	10.30	$46,838,627	20.04
Land-grant institutions	3,530	.05	30,297,069	51.88	118,861,954	50.86
Other public colleges	7,188,419	99.84	22,085,630	37.82	68,006,918	29.10
Total higher education	7,199,949	100.00	58,397,057	100.00	233,707,499	100.00

Table 5 is similar to Table 1, but includes only income for higher education. The Federal Government's support of higher education goes largely to the land-grant institutions, the percentage being 95.63, but only a little less than half of the State support goes to land-grant institutions, the remainder being divided between teacher-

training institutions and other public colleges. Fifty per cent of all income to public higher education goes to the land-grant institutions.

In Table 6 is shown the percentage distribution of public money to all public education and to public higher education only.

TABLE 6.—*Percentage analysis of income from public sources for public education* [1]

Type of education	Elementary, secondary, and higher education		Higher education only	
	Amount	Per cent	Amount	Per cent
Public-school system	$1,991,550,430	91.91		
Teacher-training institutions	40,824,269	1.88	$40,824,269	23.29
Land-grant institutions	88,564,885	4.09	88,564,885	50.52
Other public colleges	45,921,288	2.12	45,921,288	26.19
Total	2,166,860,872	100.0	175,310,442	100.00

[1] Income from miscellaneous sources is excluded in this table.

As indicated by the figures, 91.91 per cent of all public moneys expended on elementary, secondary, and higher education is expended for the public-school system, while 8.09 per cent is expended for public higher education. Of the income for higher education from public sources, the land-grant institutions receive 50.52 per cent as compared with 49.48 per cent for teacher-training institutions and other public colleges.

Table 7 is similar to Table 6, but includes only the 19 States in which the land-grant institution is separate from the State university.

TABLE 7.—*Percentage analysis of income from public sources for public education in 19 States with separate land-grant institutions and State universities, 1927–28* [1]

Type of education	Elementary, secondary, and higher education		Higher education only	
	Amount	Per cent	Amount	Per cent
1	2	3	4	5
Public-school system	$577,095,617	88.55		
Teacher-training institutions	13,282,503	2.04	$13,282,503	17.81
Land-grant institutions	27,283,356	4.19	27,283,356	36.57
Other public colleges	34,026,646	5.22	34,026,646	45.62
Total	651,688,122	100.00	74,582,505	100.00

[1] Income from miscellaneous sources is excluded from this table.

In these States the land-grant institutions receive 4.19 per cent of the income from public sources for public education in contradistinction to 4.09 per cent for all the States combined. In other words, the figure represents but one-tenth of 1 per cent larger portion. The other public colleges, however, in these 19 States receive 5.22 per cent as compared with 2.12 per cent for all the colleges. For higher education only, the universities receive 45.02 per cent of the public funds available in the 19 States and the land-grant institutions only 36.57 per cent as against 50.52 per cent for all the States.

Chapter II.—The Governing Boards

The governing board of the land-grant college and the State university is an organization of a distinct type. Vested with powers by law over the custody of public properties, over the management of public educational institutions different in character and scope from ordinary business and governmental enterprises, it exercises a trusteeship of large responsibilities. In these capacities the governing board is accountable to the State and to its people.

The governing board is a legislative body. At the same time its functions may be administrative, executive, and supervisory. It has or should have final authority over every phase of the organization of the institution under its control consistent with its legally stated purposes as contained in the statutes of the State. The status of the land-grant institutions has been established by the constitutions of 12 States and by the acts of the State legislature in the remainder. Regardless of the method of establishment it has been the general policy to create governing boards for the government of the institutions.

Statutes of all the States have vested general authority over the land-grant colleges in the governing boards. The authority thus given includes the performance of all acts necessary to keep the institutions in operation, the care and preservation of their properties, and the government of their financial and educational affairs. Whether specifically stated or implied in the laws, the governing boards have jurisdiction over the administrative and business procedure; the election of a president; the employment and discharge of teachers, officers, and employees; the prescribing of courses of instruction; the fixing of entrance requirements of students; the determining and conferring of appropriate degrees; and the making of rules for the conduct of the students.

An important question is whether the governing bodies have corporate powers giving them the right to hold and dispose of property in their own name, to receive and administer trusts, to sue and be sued, and similar prerogatives inherent in a real trusteeship. The returns received in the survey were not complete upon this subject. It is found, however, that the governing bodies of seven institutions are actual corporate bodies. In three others, the governing boards have legal authority to hold properties, but not apparently to dispose of them. Two institutions report that their governing bodies

have the right to purchase land and in one case to exercise the right of eminent domain. The governing board of one university has specific authority to acquire water rights.

Authority to receive and administer trusts should be vested in the governing bodies. An examination of the reports shows that in addition to the cases already mentioned having corporate powers, such rights are specifically given the governing boards by the laws of seven States. In the case of one institution the board may accept gifts of lands and administer them, but all trusts and bequests in the form of moneys must be paid into the State treasury for investment as part of the university's endowment. The powers and duties of the boards are limited by statute in some instances. The law of one State provides that the salaries fixed by the board of trustees must be submitted to the legislature for approval or dissent. In a third the governing body is restricted in the erection of new buildings by the requirement that the approval of the State board of public works must be secured. The statutes of a fourth State prescribe that the board shall not appoint any relative by blood or marriage to a professorship or position in the university, while in a fifth State the board is forbidden to contract a debt not previously authorized by the general assembly. The governing board is prohibited from disposing of any real estate belonging to the institution without the previous consent of the governor's council by the law of a sixth State. It is specifically provided by statute in a seventh that no partisan or sectarian test shall be exercised in the appointment of professors, teachers, or other officers or in the admission of students.

The composition of the governing boards, their size and membership, method of their appointment, length of term and service, constitution of a quorum, and number of meetings annually are vital factors in their organization. In Table 8 are presented by institutions data on these subjects.

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TABLE 8.—*Number of members of governing bodies, methods of their selection, length of terms, quorum, and number of meetings annually*

Institution	Total number of members	Number of men on board	Number of women on board	Number of ex officio members	Number of former student members	Methods by which members of governing boards are chosen: Popular election	Appointment by Governor	Appointment by Governor with approval of State Senate	Appointed by legislature	Board elects its own successors	Elected by alumni	Elected by agricultural organizations	Length of term of members	Number of members of present board serving: First term	Second term	Third term	Fourth term	Fifth term	Greatest number of years any member has served: On present board	During life of institution	Members constituting quorum: Numerical	Proportion	Sessions of governing boards in 1927: Number of regular meetings	Number of special meetings	Time used at meetings in days
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Alabama Polytechnic Institute	13	13		2	5			X					12	4	7				22		7	7/13	1	2	2
Alaska Agricultural College and School of Mines	8	7	1	1				X					8	6	2				10		5	5/8			
University of Arizona	10	9	1	2			X						8	9	1				12	16	6	3/5	3	3	6
University of California	24	23	1	8	9		XX						16	7	9				28	38	7	7/24	11		11
Colorado Agricultural College	8	7	1	2	1		X						6	4	2	1	1		23		5	5/8	1	1	1
Connecticut Agricultural College	13	12	1	3			8				2		4	5	2	1		2	21	21			11	1	6
University of Florida	5	5					X						4	1	1			3	23	3	3	3/5	13	1	
Georgia State College of Agriculture	12	12						X					6						22	32			2		7
University of Hawaii	7	6	1	2			X						5		3	1	1		18		4	4/7	11		2
University of Idaho	6	4	2	1			X						5	2	1	1	1		11		4	2/3	2	4	9
University of Illinois	11	7	4	2	4	X							6	5	2		1	1	25	26	6	6/11	11		12
Purdue University	9	8	1		4		6				3		3	2	3		3		15	19	5	5/9	4	3	7
Iowa State College	9	7	2		1			X					6	3	3	1	2		20		5	5/9	10		14
Kansas State Agricultural College	9	8	1				X						4	4	5				3		5	5/9	4		5
University of Kentucky	15	15		3	5		X						6						30		8	8/15	4		12
Louisiana State University	14	14		1	8		X						7	4	4	3	1	2	34		8	4/7			
University of Maryland	9	9					XX						9	2	7				13		5	5/9	4		5
Massachusetts Agricultural College	18	17	1	4			X						7	3	3	1	4	2	41	41	10	5/9	2	4	3
Massachusetts Institute of Technology	50	50		2	38					X			(1)						40	40	9	9/50			
Michigan State College	6	5	1	2	3	X							6	2	3	1			15	30	4	2/3	11		1

University of Minnesota	12	12			5				×				6	3	3	1	3		21	38	7	7/12	1	10	
Mississippi Agricultural and Mechanical College	9	8	1	2	2			×					2	6	2	1			10		5	5/9			
University of Missouri	9	9		2	3			×					6	5	4				18		5	5/9			
Montana State College	11	10	1	3				×					4	8	1	1	1		16	16	6	6/11	4		6
University of Nebraska	6	6			2	×							6	4	2				12	12	4	2/3	3	11	14
University of New Hampshire	13	12	1	2	2		9				2		3	5	2		1	3	18	31	7	7/13	4	2	6
Rutgers University	43	43		7	27					31	5		[2]								12	12/43	4	1	
Cornell University	40	39	1	9	28		5			15	10	1	5	8	3	6	3	1	42	52	12	3/10	4		4
North Carolina State College	60	60		2	23				×										6	20	20	1/3	1	1	4
North Dakota Agricultural College	3	3		2			×						6	3	1	1			7		3	3/5			
Ohio State University	7	6	1	1	4			×					7	4	3				14	21	4	4/7	11	5	19
Oklahoma Agricultural and Mechanical College	5	4	1	1				×					5	4	4						3	3/5			
Oregon Agricultural College	13	13		4	5			×					9	4	2	1	1	1	43	43	7	7/13	4	3	5
Pennsylvania State College	31	30	1	4	13		6				9	12	3	9	7	1		4	25	41	7	7/31	2	1	3
Rhode Island State College	7	6	1	2	1		×						5	2			3	2	25	25	3	3/7	12	3	15
Clemson Agricultural College	13	13							6	7			[3]												
South Dakota State College	5	5		1	2		×						6	3	2				8	8	3	3/5	1	12	14
University of Tennessee	18	18		4	5			×					12	10	4						7	7/18	2		2
Agricultural and Mechanical College of Texas	9	9			5		×						6	5	4				11	14	5	5/9	3	3	7
Agricultural College of Utah	13	11	2	1	2		×						4	7	2	2	2		15		7	7/13	10	1	11
University of Vermont	20	20		2	19				9	9			6	3	3	3			33	33	11	11/20	1		3
Virginia Agricultural and Mechanical College	10	10		2	4		×						4	4	3	2	1		16		6	3/5	5	2	7
State College of Washington	5	5			1		×						4	1	3	1			14		3	3/5	6		5
University of Wisconsin	17	13	4	2	6		×						6	9	3	1	1		14	19	9	9/17	5	3	16
University of Wyoming	9	7	2	3	1			×					6	6	3				8	12	5	5/9	4		3
Total	644	610	34	91	238	3	[4] 24	12	[5] 4	[6] 5	[7] 6	[8] 2		172	119	31	30	21					192	77	247

[1] 35 for life, 15 elected every 5 years.
[2] Life.
[3] 7 for life, 6 elected every 2 years.
[4] Only part of board appointed by quorum at 5 institutions.
[5] Only part of board appointed by legislature at 2 institutions.
[6] Only part of board elected by members at 4 institutions.
[7] Only part of board elected by alumni at 6 institutions.
[8] Only part of board elected by agricultural associations.

The total number of members of the governing bodies of the 45 colleges reporting in the survey amounts to 644. As shown in the table, many of the boards are very large. Five institutions have governing bodies ranging from 31 to 50 members. These boards are unwieldy. It is moreover obvious that the entire membership does not function in the actual government of the institutions. Extended study of detailed data concerning attendance at board meetings over a period of years shows conclusively that it is impossible to secure the attendance of a large number either at the regular sessions or specially called meetings. The result is that only a few actively interested members assume the responsibility of conducting the affairs of the board. Two colleges have boards varying from 20 to 25 members, 4 from 15 to 20 members, and 13 from 10 to 15 members. Although smaller in size, these governing bodies are also cumbersome and unwieldy and it is frequently necessary to handle their business largely through committees to which large authority is delegated rather than through the entire membership. In the case of 20 institutions the size of the board consists of from 5 to 10 members, a far more advantageous number. One college has but three members on its governing board.

Composition of the boards varies. The table indicates that of the entire membership of the 45 colleges, 610 are men and 34 are women. Twenty-two of the colleges have women on their governing bodies, 2 with 4 women members, 4 with 2 women members, and 18 with 1 woman member. The total proportion of women to men is 5 per cent. Since most of the institutions are coeducational, it is highly desirable that women be appointed to serve on the governing boards.

Ex officio members serve on the boards of the majority of the institutions, 34 reporting that their governing bodies are composed partially of such members. In the remaining 11 cases reported there are no ex officio members. In one institution 9 ex officio members serve on the board, in another 8, and in a third 7. The number of ex officio members in these instances is so large that it exceeds the full board membership of some of the other colleges. There are 4 institutions with from 4 to 6 ex officio members on their governing bodies, 20 with from 2 to 4, and 7 with only 1 member. Ex officio members are generally State officials and in the preceding chapter their official positions have been indicated. However, the president serves as an ex officio member of the governing bodies of 13 universities and other institutional officials of 2. A significant question is whether ex officio members have the right to vote or whether they merely serve on the boards in an advisory and consulting capacity. In 11 institutions the ex officio members have voting powers. In the remaining 34 they do not vote.

That recognition is given to alumni and former students on the governing boards of the land-grant colleges is evidenced by an examination of the table. Out of the 644 members making up the membership of the boards of 45 institutions, 238, or approximately 37 per cent, are listed as former students. The boards of 31 colleges have alumni membership and in 10 States the law specifically provides that a certain number of the members of the governing bodies shall be former students. Such representation is undoubtedly advantageous as former students and alumni generally have a keen interest in the progress and development of the institutions. In a number of cases there are large proportions found on the governing bodies.

There is 1 university with 90 per cent of its members who are former students, 1 with 76 per cent, 1 with 70 per cent, 1 with 63 per cent, 3 with from 55 to 60 per cent, 1 with from 50 to 55 per cent, 5 with from 40 to 45 per cent, 6 with from 35 to 40 per cent, 3 with from 30 to 35 per cent, 1 with from 25 to 35 per cent, 2 with from 20 to 25 per cent, 2 with from 15 to 20 per cent, 3 with from 10 to 15 per cent, and 1 with less than 10 per cent.

The methods by which the governing bodies are chosen is of paramount importance in determining their personnel. In three States the members are chosen by popular election. Such a plan has the advantage of increasing the contact of the general public with the land-grant institutions, but at the same time it necessitates placing the candidates on political ballots. There are 19 States where the governor appoints the entire board and 5 where he appoints a part of the membership. The board members in 12 other States are appointed by the governor with the consent of the senate. Power to appoint the governing bodies of State higher educational institutions is a serious responsibility. Doubt exists, therefore, whether it should be vested in a single official. In two States the entire board is chosen by the State legislature and in two others a certain number of the board members are chosen in this way. One of the universities, a semiprivate institution, has a self-perpetuating governing body while a part of the membership of four others is chosen by the board itself. The alumni elect a portion of the boards of five colleges and agricultural associations chose members in two. While all the methods just cited have their advantages, the plan of appointment by the governor with the approval of the State senate would seem to be the most desirable.

Qualifications and requirements for membership on the governing bodies are prescribed in the laws of 27 States. These are geographic, political, vocational, and sectarian. Each of the congressional districts of their respective States must be represented on the boards of five land-grant colleges. In four others the State statutes stipulate that not more than one board member shall be appointed from a

single congressional district. There are four States where the board must be composed of representatives from different sections. The governing body of one land-grant institution must include a member from each county of the State, while in the case of another no two members may be selected from the same county. According to the statutes of two States, no member of the board shall reside in the county in which the institution is located. Restrictions upon political party membership are found in only six States. The laws of four prescribe that both major political parties shall be represented on the governing boards. One-third of the members of the governing body of one institution must belong to the opposition party at the time of the appointment while in another the State statute requires that not more than five board members shall be of the same political faith. In order to assure the selection of governing bodies for the land-grant institutions directly interested in their educational objectives, vocational qualifications have been prescribed by the laws of five States. All of the members of the board in one institution, according to the provisions of the State law, must be connected with agriculture. The governing body of another must consist of members with five years of experience in successful farming and in a third at least two members of the board must be farmers. The law of one State requires that the governing body of the land-grant institution must be selected from its foremost mechanics graduates. Two members prominent in agricultural pursuits and two in manufacturing industries must be chosen under the statute of another State. The majority of the board in the case of one institution can not be of the same religious sect.

The composition and permanence of the governing bodies is dependent to a large degree upon the length of the term of office. When the power of appointment is vested in State agencies it is essential not only that the terms of the members expire in different years but that they be of sufficient length to insure that a single State administration shall not change the entire complexion of the board. State officers generally serve for a period of four years. It is advisable, therefore, that the length of the term of the trustees exceed four years in length and that vacancies in the membership occur annually or in alternate years. Of the 45 institutions reporting on this point, the term of office is more than four years in 35, while in 10 others it is four years or less. In one land-grant institution the members of the governing body serve for life. In two others the term of office of a part of the membership is for life and the remainder for fixed periods of time.

The length of the term of office is 16 years in 1 institution, 12 years in 2, 9 years in 2, 8 years in 2, 7 years in 3, 6 years in 15, and 5 years in 6. Terms

of such length assure the elimination of political and partisan influence to a considerable degree. In the institutions with shorter terms of office for the trustees, 7 are for 4 years, 3 for 3 years, and 1 for 2 years.

The governing boards should be more or less permanent in order to avoid sudden changes in the policies for the operation and development of the institutions. An examination of the reports received discloses that continuity of service on the boards is quite general.

There are 21 trustees that are serving their fifth term, 30 their fourth term, 31 their third term, and 119 their second term, while 172 of the trustees are serving their first term. The greatest number of years that any individual member has served on the present governing body of an institution is also indicative of permanence of tenure. The records show that 3 trustees have been in service between 40 and 45 years, 1 between 35 and 40 years, 3 between 30 and 35 years, 4 between 25 and 30 years, 8 between 20 and 25 years, 8 between 15 and 20 years, 10 between 10 and 15 years, and four between 5 and 10 years.

In one institution a member of the governing body has served continuously for 52 years. One institution reports that the longest time any member of its present board has served is three years, an exceedingly short period.

The organizations of the boards are generally similar except for the number of officers and variation in titles. All the boards have a presiding officer known as the chairman or president. Twenty have a vice president or vice chairman. In three cases the head of the governing body is an ex officio or honorary president and the vice president serves as presiding officer at the meetings. Besides these principal officers, the boards of 35 colleges have secretaries, although this official is a member of the body in only a few instances. There are 15 governing bodies that have a treasurer, 3 an auditor, 2 a comptroller, 1 a financial secretary, 1 a business officer, and 1 a fiscal agent. The financial officer is not an actual member of the board of trustees in most instances, but is the chief business official of the institution.[2]

A large number of standing committees is found in the organization of the governing bodies. This is due in some instances to their large size and inability to conduct business through the board as a whole. There are as many as 75 different standing committees represented in the 45 institutions reporting in the survey. The most common are the executive, finance, and building committees, although not a few boards have established also extension, agriculture, experiment station, engineering, auditing, faculty, library, honorary degrees, and other types of standing committees. The largest number of standing committees found in the governing body of any single institution is 23 where a visiting committee has been appointed for every academic department. Another board has 16 standing committees.

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[2] See Pt. III, p. 75.

The governing bodies of three institutions have from 14 and 15 standing committees, three from 11 to 12, three from 7 to 8, nine from 5 to 6, three from 3 to 4, and fourteen from 1 to 2 committees.

Seven of the boards have no standing committees whatever, the entire membership conducting its affairs as a unit. In addition to the standing committees, some of the governing boards appoint special committees to exercise jurisdiction over specific work assigned to them.

The size of the board is a significant factor in the determination of a quorum at the meetings. The number constituting a quorum ranges from 3 to 20 members in the different institutions, while a majority of the members is the proportion required in 36 institutions. There are six governing bodies which are so large that the requirements for a quorum are considerably less than a majority.

One institution with a board of 24 trustees requires only the presence of 7 members to make up a quorum, a second with 50 requires only 9 members, a third with 43 requires only 12 members, a fourth with 40 requires only 12 members, a fifth with 60 requires only 20 members, and a sixth with 31 requires only 7 members.

In the cases of large governing bodies, it is evident that the quorum is reduced because of difficulty in securing attendance. In 11 of the land-grant institutions, ex officio members of the governing boards without voting powers are included in counting the quorum. Three institutions failed to report on the number of members constituting a quorum at the meeting of their boards.

There is a lack of uniformity in the number and time of the official meetings of the governing bodies. The boards of six institutions meet only once a year in regular session. Three hold their regular sessions three times annually and the regular meetings of five are held semiannually. The practice of holding meetings at such infrequent intervals necessitates the delegation of the powers of the boards to committees and results in a part of the membership losing intimate contact with the institutions they govern. It would appear advantageous in these cases for the boards to meet more frequently.

The regular meetings of the trustees of 10 institutions are held quarterly, of 3 every other month, and of 10 monthly. In addition to their regular meetings, the boards of 22 institutions have adopted the practice of holding special meetings to consider business of importance needing immediate action. During the year 1927, 12 special meetings were held by the governing body of one institution, 11 by one, 10 by one, 5 by one, 2 by two, 3 by six, 2 by three, and 1 by seven. There were 15 whose governing bodies held no special meetings.

An effort was made to secure data on the attendance of trustees at meetings, but the figures were not entirely accurate. An examination of the returns, however, shows that in the 44 institutions reporting the proportion of attendance for regular members was 71 per cent and for ex officio members 54 per cent. In the case of the governing boards of 14 institutions, the members are permitted to

vote by mail on vital questions without the necessity of being present at meetings. The ordinary custom is to permit the attendance only of members of the board and the president of the institution at board meetings, but at 17 institutions the chief business officer of the college is present and at 4 others members of the faculty are admitted. Seven governing bodies permit representatives of the press to attend and the meetings of six boards are open to the general public.

In all the land-grant institutions the boards have adopted by-laws and regulations for the control of their own procedure and for the government of the institutions. The by-laws in some instances date back as far as 1865 but recent revisions have been made to meet the changed conditions in practically every instance. There are 12 governing bodies that have revised their by-laws within the last 5 years while 8 others have made revisions within the past 10 years. The boards of the remaining institutions have changed their by-laws at various dates prior to 1918.

That the boards of trustees have initiated significant modifications in the procedure and administration of a number of the colleges is indicated by the reports. Such changes are reported by 17 institutions. In several cases, an entire reorganization of the institution has been effected while in others new and modern practices have been installed through action by the governing bodies. The changes consist principally of improvements in the business organizations, in the expansion of educational activities, and in the enforcement of new policies affecting the academic programs, staff, and students.

As members of the governing bodies are frequently uninformed about the particular questions and business transactions to be considered at the meetings, it is advisable that they be furnished with briefs in advance of the sessions. This plan is followed regularly in 11 land-grant colleges and in 31 occasionally. Copies of the minutes of the meetings are supplied to the president in 36 institutions and to all board members in 33. The minutes in 32 cases are sent to the members immediately after the meetings. There are four cases where they are presented to the board immediately before the next following meeting. In making reports of the meetings, stenographic reports of all discussions are made by only one institution while the discussions are incorporated as a part of the official proceedings in one. The remaining boards limit the records of proceedings to motions, resolutions, balloting, and formal items. Proceedings of the governing bodies of 7 institutions are published in printed form, 2 being printed annually, 2 biennially, 2 after each meeting, and 1 at indefinite times.

Attention has already been called to the fact that the members of the boards of trustees serve without pay. Of the 44 colleges reporting, the members receive no compensation in 35 institutions and in the remainder the amount of pay is so small as to be nominal with one exception. The board members receive $5 per day while actually employed on official business at one college, $6 per day at one, $10 per day at one, $100 per year at one, $1,000 per year at one, and $3,000 per year at one. In the latter case the board is a regular department of the State government. There are also two institutions where the members of the board receive no compensation, but the treasurer is paid $875 annually in one and the president $200 annually in another. Expenses of the members are paid in 29 colleges, while they pay their own expenses in five. One institution reports that its trustees rarely accept reimbursement for their expenses. That such a large number of American citizens as are found on the governing boards of the land-grant institutions should accept the responsibilities of trusteeship without remuneration indicates an inspiring and lofty attitude of public service and civic loyalty.

Chapter III.—Chief Executive Officer

In the conventional organization of higher educational institutions the president is the chief executive officer. Associated with the president, usually in direct subordination to him, are commonly two administrative offices—the business office and the registrar's office. Less uniformity of title and function exists with reference to other offices and agencies that are concerned primarily with administrative matters. However, official organizations of the faculty constitute a group of administrative agencies that normally are responsible for a considerable portion of the detailed administration of educational policies.

In addition to this group of faculty bodies, a variety of important administrative offices have been charged with specific phases of institutional life. In this miscellaneous group may be included the deans of men and women, directors or deans of instruction, research, and extension, the vice president, and assistants to the president. All of these agencies of administration, president, business and registrar's offices, faculty bodies, and miscellaneous officials, would have to be considered in a logically developed examination of executive functions in any higher educational institution. Since, however, the subject of administrative organization constitutes but one element in this survey of the land-grant colleges and universities, it is more convenient to discuss the details of some of these phases of institutional administration in subsequent parts of the survey report. Detailed treatment of the business office will be found in the section on business management and finance [3]; of the registrar in the part on registrar's information [4]; of the deans of men and women in the section on student relations and welfare [5]; of the librarian in the section on library [6]; of deans and directors of instruction, research, and extension in the sections dealing with specific subject-matter fields, adult education and graduate and research. This section of the report will, therefore, deal only with president, vice president, and assistant to the president.

The chief executive officer of the land-grant institutions is elected by the governing board. His official title is president except in a few cases where he has been designated as chancellor. The tenure of office of the president varies in the different institutions. It consists of one year in 11 colleges, of two years in 1, is indefinite in 31, and is for life in 1. Where the term of office of the president is limited, this results from the necessity of conforming to State law and his reelec-

[3] Part III. [4] Part IV. [5] Part VI. [6] Part VIII.

tion at the expiration of the term is a mere formality on the part of the governing body.

The length of service of the president is a question of vital significance. Permanent and constructive policies for the development of the institutions can not be effectively pursued, if frequent changes are made in their chief executive officers. A total of 308 presidents has served in 44 of the land-grant colleges since their establishment. Of this number there are 228 that severed their connection with the institutions by resignation and 34 by death, while the remaining 44 are still in service. Data on two presidents were not furnished. That the actual length of service is short and that there is considerable turnover in the position is disclosed by the fact that 167 presidents served less than five years. Of the latter, 25 are still in service. The reports also show that 76 presidents have served between 5 and 10 years, so that for the group of colleges as a whole a great majority of the presidents have held their positions for periods less than 10 years. Responsibility for this situation may be due to the fact that the institutions are public but frequent changes in the chief executive officer tend to retard the orderly and progressive advancement of the institutions. The office of president of a State higher educational institution should not be a political position and should not be subject to the uncertainties of elective public service.

In the case of the remaining presidents, 28 have served from 10 to 15 years, 20 from 15 to 20 years, 9 from 20 to 25 years, 3 from 25 to 30 years, and 1 more than 30 years. The chief executives of 2 institutions served 39 and 41 years.

It is not within the province of this survey to appraise the personal qualifications, training, and abilities of the presidents of the different land-grant colleges. Certain information, however, has been collected concerning age, marital status, place of birth, degrees, teaching experience, and authorship of 48 of the 52 incumbents of the office for the year 1928. Its presentation is of interest. The oldest chief executive of any of the land-grant institutions in 1928 was 74 years of age and the youngest 35 years. The median age was 55 years.

There were 4 presidents between 65 and 70 years of age, 8 between 60 and 65 years, 13 between 55 and 60 years, 10 between 50 and 55 years, 8 between 45 and 50 years, and 3 between 40 and 45 years.

According to these figures, 22 of the presidents, or almost 50 per cent, were less than 50 years of age, an indication that executive heads of the institutions are to a large extent of middle age. With two exceptions, the presidents of all the colleges are married. An examination into birthplace of the executives discloses that 7 were born in foreign countries, 4 in Canada, 1 in Mexico, 1 in Scotland, and 1 in Wales. The remainder are natives of 22 different States.

Six of the presidents were born in Ohio, 3 in Iowa, 3 in Virginia, 3 in Utah, 3 in Indiana, 2 in Michigan, 2 in Tennessee, 2 in Wisconsin, 2 in Illinois, 2 in

Missouri, 2 in New York, 1 in Pennsylvania, 1 in Nebraska, 1 in Maine, 1 in Mississippi, 1 in New Jersey, 1 in Minnesota, 1 in Arkansas, 1 in Massachusetts, 1 in North Carolina, 1 in Vermont, and 1 in West Virginia.

The chief executives of nine colleges were born in the same State in which the institutions are located.

Using the number of degrees earned as a criterion, the amount of academic training of the presidents of the land-grant colleges varies to a considerable extent. Seven of the executives, or 15 per cent, hold only first degrees. The master's degree is the highest held by 13, or 27 per cent, while 28 presidents, or 58 per cent, hold the doctor's degree. First degrees of 4 and the highest degrees of 2 chief executives were received from their own institutions. Twenty-five presidents hold honorary degrees, seven such degrees having been conferred on the chief executive of 1 land-grant institution, five on 2, four on 3, three on 3, two on 7, and one on 9.

Of the total of 48 presidents concerning whom data were collected, 42 have had actual teaching experience. In a number of cases the subject-matter fields in which such teaching experience was obtained applies directly to the land-grant type of education. Nine presidents have had teaching experience in agriculture, 3 in engineering, 2 in extension, 9 in natural sciences, 5 in economics, 5 in education, 2 in English, 2 in ancient languages, 1 in social science, 1 in philosophy, 1 in public speaking, 1 in business administration, and 1 in law. In 16 cases the teaching experience was secured in the institutions where the chief executives are now serving.

Thirty presidents are authors of various types of publications in specialized subject-matter fields. Works on agriculture have been published by 7 chief executives, on education by 7, on economics and finances by 3, on history by 3, on political science by 2, on natural sciences by 2, on English by 2, on astronomy by 1, on philosophy by 1, on religion by 1, and on law by 1. According to the information gathered, 18 presidents have not been the authors of any publications.

The president is the chief executive officer of the governing board. In this capacity he is responsible for enforcing the decisions, actions, policies, and regulations adopted by the governing body for the operation of the institution. The president should present all business and other matters considered by the board at its regular annual and special meetings. An examination of the reports reveals that this responsibility is vested in the president in all of the 43 colleges reporting on the point and that in the case of 9 colleges the chief business officers, deans, and other officials also present matters to the board upon specific request of the president. In one institution the faculty is permitted to submit proposals to the board of trustees without the president's intervention. New policies dealing with all

phases of institutional management and administration should also be presented to the governing board by the president. Under no circumstances should the board initiate policies without recommendation from or through the chief executive office. It is found, however, that the unwise procedure of the board acting on its own initiative is followed in three colleges more or less regularly and in two others occasionally.

In order to administer properly the affairs of the institution the president should have complete authority over the selection of all officers, members of the staff, and other types of employees. The general practice is for the president to make recommendations of appointments to the board which is vested with the power of election. The records show that in three institutions the governing body elects certain officers without recommendation from the president. In one case the secretary is chosen by the board on its own initiative, in a second both the secretary and the chief business officer, and in a third all employees of the business administration are elected upon the recommendation of the comptroller rather than the president.

An important question is the procedure followed when the board declines to elect individuals recommended by the president. According to the returns, such a situation has never arisen in 22 of the land-grant colleges while in 19 the president is called upon to submit subsequent recommendations. Two institutions report that the board makes its own selection on such occasions. There is one institution where the president has blanket authority to appoint all officials, faculty members, and employees without reference to the governing board.

If the internal operations of the institutions are to be effectively administered, a systematic plan should be adopted for the routing of business. The most efficacious line of procedure is from the individual staff member to the head of the department, from the head of the department to the dean or director, and from the dean or director to the president except in matters that are handled by the business officer. The exception applies only to the extent that upon certain matters the business office acts for the president, it should not be exempt from responsibility to him. All administrative authority is thus centered in the president's office. This practice is followed in all of the land-grant institutions with four exceptions. In the latter institutions, the department heads route their business direct to the president instead of through the deans or directors, an arrangement that results in the diminution of the authority of the deans and directors and is derogatory to efficient administrative procedure.

To serve in an advisory capacity to the president and to assist him in the solution of administrative problems, committees functioning

for the institution as a whole have been organized in the institutions. The committees are composed of both administrative officers and members of the teaching faculty. The largest number of committees found in any single institution is 23.

There is one college with 16 committees, two with 13, one with 11, one with 10, one with 9, one with 8, two with 4, one with 3, four with 2, and seven with 1.

The principal committee of this type is the cabinet or executive committee which serves as a direct advisory body to the president, but in only seven institutions does such an organization exist. Among the most common committees are those on publications, admission, curricula, athletics, discipline, buildings and grounds, and library. While authority has been delegated the committees in some instances, their powers are limited. Whatever the practice, the committees should under all circumstances report to the chief executive, who should have power of reversal of any of their decisions.

Legislative bodies for the discussion of institutional problems have been organized in 40 of the institutions. The president serves as the presiding officer of the body. It is known as the faculty or general faculty in 21 colleges, as the council in 11, and as the senate in 8. Membership in the body is limited to the higher administrative officers in 11 institutions and to selected faculty members generally above the rank of instructor in 17. The entire faculty comprises the legislative body in the case of 9 land-grant institutions. While the body should function as a general legislative and administrative organization it should not concern itself with individual schools and colleges. The president should exercise the right of veto over its decisions.

In his official position as chief executive officer, the president is without the aid of a vice president as an assistant executive officer in practically all of the institutions. Only seven of the colleges actually have a vice president and in but two cases does he serve on a full-time basis. Three of the vice presidents serve as deans of colleges within the institutions, their duties as vice presidents being nominal while in two instances they are part-time positions. The office of assistant to the president has been established in only 11 of the total of 44 colleges filing returns. The position is one of considerable responsibility, authority, and prestige in all these institutions, the officer serving as the official representative of the president in both internal and external contacts. The importance attached to the post of assistant to the president is shown by the salary paid.

In one institution, his salary is $9,000 annually, in a second $7,500, and in a third $7,000. Three other assistants to the president receive between $5,000 and $5,500 per year, three between $4,000 and $5,000 while the stipend of the two others is $3,200 and $3,800.

Chapter IV.—Educational Organization

Facility of administrative procedure, effective operation of internal machinery, and conduct of academic programs are dependent upon the educational organization of the institutions of higher education. Where unnecessary major divisions have been established in order that certain functions may be emphasized, where independent units have been created for the purpose of giving prestige to their work, and where separate departments have been set up to meet the wishes of local personnel without actual justification, the organization becomes cumbersome and complicated. Difficulty is encountered in efficient operation.

The tendency in the land-grant group of institutions is toward overorganization. The 40 institutions submitting returns concerning their educational organizations contain 27 different colleges, schools, or similar major divisions and have a total of 212 different departments of instruction. Although the educational objectives of the institution are supposed to be similar in purpose, except where the land-grant colleges are incorporated as a part of the State universities, only two institutions have the same organization. The remaining institutions have a variety of divisional segregations in which are intermingled departmental groups apparently according to local preference in a number of cases rather than upon a basis of the broad principles of organization. In Table 9 is shown the colleges, schools, and major divisions included in the organization of the individual colleges filing returns.

TABLE 9.—*Colleges, schools, or other major divisions in the land-grant institutions, organizations, 40 institutions reporting*

Institution	Graduate school	Agriculture	Engineering	Arts and sciences	Architecture	Chemistry	Veterinary medicine	Education	Extension teaching	Home economics	Law	Agricultural experiment station	Agricultural extension service	Music	Science	Medicine	Dentistry	Mines	Commerce and business	Pharmacy	General extension	Forestry	Fine arts	Journalism	Museum	Observatory	Library	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Alabama Polytechnic Institute	×	×	×	×	×	×	×	×	×	×																		10
University of Arizona		×	×	×				×			×	×	×	×											×	×		10
Colorado Agricultural College	×	×	×				×			×		×	×		×													6
Connecticut Agricultural College		×	×					×		×		×	×		×										×			7
University of Florida	×	×	×	×	×						×	×	×						[1] ×	×	×							13
University of Hawaii				×											×													2
University of Idaho	×	×	×	×				×			×	×	×			×	×	×	×			×		×				12
University of Illinois	×	×	×	×				×			×	[2] ×		×	×				×	×							×	12
Purdue University		×	×							×					×					×								6
Iowa State College	×	×	×				×			×					×													6
Kansas State Agricultural College		×	×				×			×					×						×							6
University of Kentucky	×	×	×	×				×			×								×		×							8
Louisiana State University		×	×	×				×			×	×	×						×		×							9
University of Maryland	×	×	×	×				×		×																		6
Massachusetts Agricultural College	×	[3] ×		[11] ×						×					×													5
Michigan State College		×	×	×			×			×					[12] ×													6
University of Minnesota	×	×	×	×		×		×			×					×	×	×		×								11
Mississippi Agricultural and Mechanical College		×	×	[13] ×											×													4
University of Missouri	×	×	×	×				×			×					×		×	×		×		×	×				12
Montana State College		×	×	×						×					[13] ×													5
University of Nebraska	×	×	×	×				×	×		×		×			×	×		×	×	×		×	×				15
University of New Hampshire	×	×	×	×				×																				4
Rutgers University		×	[4] ×	×				×												×	×							6
Cornell University	×	×	×	×	×		×			×	×	×				×			[(5)]									10
North Carolina State College	×	×	×					×		[6] ×					×													6

[1] Includes journalism.
[2] Includes agricultural extension.
[3] Horticulture separate.
[4] Ceramics separate.
[5] Included in science.
[6] Textile school.
[11] Called division of social science.
[12] Applied science.
[13] Academic division.

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TABLE 9.—*Colleges, schools, or other major divisions in the land-grant institutions, organizations, 40 institutions reporting*—Continued

Institution	Graduate school	Agriculture	Engineering	Arts and sciences	Architecture	Chemistry	Veterinary medicine	Education	Extension teaching	Home economics	Law	Agricultural experiment station	Agricultural extension service	Music	Science	Medicine	Dentistry	Mines	Commerce and business	Pharmacy	General extension	Forestry	Fine arts	Journalism	Museum	Observatory	Library	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
North Dakota Agricultural College		X	[7] X	X		X	X	X		X										X								8
Ohio State University	X	X	X	X			X	X			X					X	X		X	X								11
Oklahoma Agricultural and Mechanical College		X	X																									2
Oregon Agricultural College		X	X	X		[8] X		X	X	X		X	X	X				X	X	X		X		X				15
Pennsylvania State College	X	X	X	X		[8] X	[9] X	X										X										8
Clemson Agricultural College		X	X	X		X				[6] X																		5
South Dakota State College		X	X	X						X										X								5
University of Tennessee	X	X	X	X				X	X	X						X	X				X							10
Agricultural and Mechanical College of Texas	X	X	X	X			X	X																				6
Agricultural College of Utah	X	X	X	X				[10]		X									X									6
University of Vermont		X	X	X								X	X			X												6
Virginia Agricultural and Mechanical College		X	X												X													3
State College of Washington	X	X	X	X			X	X	X	X		X	X					X		X	X		X					14
University of Wisconsin	X	X	X	X					X		X			X		X										X		9
University of Wyoming		X	X	X				X	X		X									X								7
Total	22	39	38	32	3	6	11	22	7	19	13	10	9	4	12	9	5	6	10	12	9	2	3	4	2	2	1	312

[6] Textile school.
[7] Mechanic arts.
[8] Includes physics.
[9] Animal nutrition.
[10] With arts and science.

The largest number of colleges, schools, or major divisions included in the educational organization of any individual institution is 15. Two institutions have this number. The second largest is 14 found in 1 institution. There are 2 institutions with only 2 major divisions and 1 with only 3. In the remaining institutions the educational organizations are divided into major divisions ranging from 4 to 14.

Four of the institutions have between 12 and 14, six between 10 and 12, five between 8 and 10, thirteen between 6 and 8, and six between 4 and 6. The table shows that 39 institutions have major divisions of agriculture, 38 of engineering, 32 of arts and science, 22 of graduate work, 22 of education, 19 of home economics, 13 of law, 12 of science, 12 of pharmacy, 11 of veterinary medicine, 10 of agricultural experiment stations, 10 of commerce and business, 9 of general extension, 9 of agricultural extension service, 9 of medicine, 7 of extension teaching, 6 of chemistry, 6 of mines, 5 of dentistry, 4 of music, 4 of journalism, 3 of architecture, 3 of fine arts, 2 of forestry, and 1 of library. The museum of one institution is a separate major division as is the observatory in another.

It is not proposed to discuss each of the colleges, schools, or major divisions in the different institutions in detail but rather to point out some of the inconsistencies existing in the educational organizations. The records show 32 institutions with arts and science divisions. In one case the unit is called the division of social science and in another the academic division. Eight of the colleges have no arts and science colleges; instead they have organized divisions of science. In addition four institutions have established colleges of applied science. Although the subject-matter field of chemistry is commonly included as a department in the college of arts and sciences, there are six institutions that have established colleges or schools of chemistry in one of which is included physics. A college of education exists in 22 institutions and a separate division of extension teaching in 7. Home economics has been organized as a separate major division in 19 institutions. The agricultural experiment station has been segregated and is operated as a separate unit from the college of agriculture in 10 institutions, while in the others it is included as a subdivision of this major division. In 10 institutions the work of the agricultural extension service is organized independently of the college of agriculture. An independent division of general extension has been established in nine institutions.

Because of the multiplicity of departments found in the land-grant institutions, no attempt has been made to compile a table showing the number in each of the institutions. Of far more importance are the groupings of the departments in the colleges, schools, or major divisions. A general lack of uniformity among the different institutions is found in this respect. In Table 10 are shown some of the more common departments and their location in major divisions.

TABLE 10.—*Assignment of departments to major divisions*

Department	Colleges in which located—											
	Agriculture	Chemistry	Commerce	Education	Engineering	Arts and science	Medicine	Pharmacy	Science	Veterinary medicine	Industrial science	Independent department
1	2	3	4	5	6	7	8	9	10	11	12	13
Bacteriology	2					7	3		2	1	1	
Botany	11					10		2	5		1	1
Chemistry	2	2			4	14	3	2	8		1	2
Economics	2		5			10			4		1	1
Mathematics	2				6	17		1	5		1	2
Physics	1	1			9	14		1	7		1	1
Psychology				5		5	1				1	
Zoology	10					12			4		1	1

It is evident that an almost consistent irregularity is found in the departmental organizations. The failure of the institutions to assign such common departments as are shown in the table to the same major divisions would indicate that the educational organizations have not been given sufficient careful study. That the ordinary principles of uniting related departments are not being observed in many of the land-grant colleges is obvious. The arrangement has been adopted in some instances of creating independent units of small departments, no fewer than 11 having been established in the 40 institutions filing returns. Such an organization is difficult to justify. An opportunity, therefore, exists for a complete realignment of colleges and departments in a number of cases. In the various parts of this report dealing with the subject-matter fields, the question of college and departmental organizations is discussed in full detail.

Chapter V.—Summary and Conclusions

Recent reorganizations of State governments, the creation of State budgets, and the extension of the power of State agencies over the finances and the internal affairs of the land-grant colleges have in many instances tended to supersede the authority of institutional governing boards and institutional administrative officers.

When the State puts the responsibility for detailed control of institutional expenditures and other internal affairs in the hands of State officials, it turns the management of its State institutions to a certain degree over to the individuals. The governing board of a land-grant institution is a legislative body in more or less continuous session. Its rules and regulations can be adjusted to meet changing conditions. The laws of the State legislature must stand at least until the succeeding session. The regulations laid down by State officials under legislative authority can not be challenged except at a session of the legislature. All of these facts emphasize the great importance as well as the great advantage of leaving the governing boards of the land-grant institutions free to administer these institutions under the provisions of the general laws and within the limits of appropriations made by the law-making body of the State. The following principles are presented with reference to the State and institutional control of public institutions of higher education.

(1) The governing body should be clothed with sufficient power and authority to administer its trust properly and should report to the governor and the legislature. A budget, uniform with those of the other State departments supported by necessary details, should be filed with the State budget-making authority. The governing board should have the opportunity to explain its budget before the legislature in cases of differences with the budget-making agency. Appropriations for current expenses for the support of the institutions by the State should be made in the form of lump sums under general headings, those for major capital purposes by specific project.

(2) Appropriations made by the legislature should be available for expenditure by the governing board of the institution for legal purposes without restriction other than as to legality, accuracy, and honesty unless the revenues of the State are insufficient to meet them. The budgets and accounts of the educational institutions should in general be classified in the same fashion as other State departments, but such uniform classification should be limited to broad general headings to permit more detailed classifications by the institutions appropriate to their activities.

(3) Expenditures from State appropriations should be made by State warrants for individual bills or pay rolls. Institutional receipts should be deposited in and disbursed from the treasury of the institution, these transactions to be fully covered in regular audits and reports, and included in the institution's budget submitted to the legislature.

(4) The governing board should have the power to plan and erect all buildings provided for by legislative appropriation. Authority to receive, handle, and administer trusts in perpetuity should be vested in the governing body, such funds being exempt from all State and local taxes.

(5) The methods by which the governing boards are chosen is of paramount importance in determining their personnel. A variety of arrangements for the appointment of the members is in effect in the different States, including popular election, selection by governor with and without the consent of the senate, by the State legislature, partially by the alumni, and by the board itself. The most desirable plan is for the appointment of the members by the governor with the approval of the State senate.

(6) The composition and permanence of the governing bodies is dependent to a large degree upon the length of the term of office. When the power of appointment is vested in State agencies, it is essential not only that the terms of the members expire in different years but that they be of sufficient length to insure that a single State administration shall not change the entire complexion of the board.

(7) Constructive policies for the development of the institutions can not be effectively pursued if frequent changes are made in the chief executive officers. According to the data collected, the actual length of the term of the president is short for the land-grant college group as a whole and there is a considerable turnover in the position. Frequent changes in the chief executive officer tend to retard the orderly and progressive advancement of the institutions. The office of president of a State higher educational institution should not be a political position and should not be subject to the uncertainties of elective public service.

(8) The president should serve as the chief executive officer of the governing board responsible for the enforcement of its decisions, actions, policies, and regulations for the operation of the institution. In this capacity, he should present all business and other matters to the governing body at its regular and special meetings. Under no circumstances should the board initiate policies without regard to the president. For the proper administration of the affairs of the institution, the president should also have complete authority over the selection of all officers, members of the staff, and other types of employees, the governing board following the recommendations.

PART III.—BUSINESS MANAGEMENT AND FINANCE

Chapter I.—Organization of Business and Fiscal Office

Finance and business organization are the foundations of the educational structures of land-grant institutions. Without the necessary financial support, without competent handling of fiscal affairs, and without the employment of organized business methods, the fulfillment of academic programs or the achievement of educational objectives is impossible or must be wastefully accomplished. Land-grant colleges are maintained primarily by funds obtained from public sources. To secure the confidence of State officials and State legislatures intrusted with the appropriation of such funds and of the taxpayers who contribute them, it is essential that sound business principles be applied to expenditures and that the highest possible return in educational service be realized.

No land-grant college, however small, should be without a central business or fiscal officer responsible for the efficient handling of all business and property. Business principles do not vary in their application. They are as relevant to the institution of higher education as to the private commercial enterprise. The business organization should be charged with service to the instructional organization of colleges and universities. Only academic duties should be performed by members of the faculty if the best results are to be attained in the establishment of an effective and efficient teaching organization.

The same principles apply equally to the general government of the institutions. Members of governing bodies with important personal and private interests, serving without compensation, are unable to give their attention to routine business management and supervision. Their time should be utilized in directing major policies and in solving major problems. Nor should the president of the institution serving as executive agent of the governing body be called upon to attend to the multitude of details connected with financial administration. If he is required to do so the larger responsibilities of his office will, almost of necessity, be neglected. This does not mean that the governing body and the executive officer

should relinquish control over financial and business affairs, but that the details of management should be delegated to a business or financial officer especially trained and qualified for the work.

In the early history of the land-grant college, it was the custom to distribute to a large degree the handling of business matters among the governing, executive, and academic branches. The institutions were small. Funds received for their support were limited and no necessity existed for a separate business office. But with the growth in the size of the land-grant institutions, the great capital investments in physical plants, the added responsibilities of property management and accountability, the increase in annual revenues, the multiplication of academic divisions and subject-matter fields, and with the development of many auxiliary enterprises and service departments, it became imperative that attention be given to the creation of central organizations to control the expanding business and fiscal activities. The reports show that 39 of the 43 institutions filing returns in the survey have established central business or fiscal offices, that 2 institutions handle their business and finances in the president's office, and that 1 institution conducts its business and financial affairs through a State business office. No return was made by one institution.

Among the institutions which have established separate business or fiscal offices a diversity of practices is found. Some of the universities and colleges have segregated the management of their business from their fiscal affairs by the creation of both business and fiscal offices, while others have made still further subdivisions into coordinate units. The variety of arrangements is illustrated by the names applied to the central office.

In 11 institutions it is called the business office, in 7 the comptroller's office, in 7 the office of the secretary, in 4 the treasurer's office, in 2 the business manager's office, in 2 the bursar's office, and in 2 the office of the financial secretary. In one institution the office is designated as the office of business agent and secretary, in a second as the fiscal department, in a third as the State business manager, and in a fourth as the regent's office. Four colleges failed to report on the name given their central business or fiscal office. A similar situation is revealed by examination of the official titles conferred upon the chief business or fiscal officer. The title of the officer is comptroller in 10 institutions, business manager in 9, bursar in 4, treasurer and business manager in 2, and secretary-treasurer in 2 cases. The titles applied by the remaining institutions are business agent, financial secretary, secretary and business manager, finance secretary, treasurer and business manager, comptroller and treasurer, manager, business-agent secretary, comptroller of accounts, and secretary-treasurer and purchasing agent.

The name of the central business office and the title conferred upon the officer in charge are of little significance except to illustrate the lack of uniformity in institutional practices. Of vital importance, however, are the questions of power of appointment of the business or fiscal officer and the authority to which he is responsible. The returns indicate that the president recommends his appointment in

31 institutions and the chancellor of the university in 2 others. One university reported that the appointment is recommended by the institutional treasurer, who is the chief fiscal officer, while in another case the recommendation is made by a committee of the university trustees. Seven colleges furnished no information on the question. In the case of one university it was stated that no recommendation was required. As the business officer should serve directly under the president, who is the responsible administrative head of the institution in all its phases, the practice in the majority of institutions is sound.

The power of appointment of the business or fiscal officer should be vested in the governing body of the institution. This is the practice in 32 universities and colleges. In the remaining institutions different policies are in effect.

In the case of one institution the business manager is appointed by the board of regents of education, in a second by the board of supervisors, in a third by the State board of agriculture, in a fourth by the board of administration, in a fifth by the chancellor, and in a sixth by the governor of the State. One university reported that the appointment is made by the board of visitors and another that the appointive power is vested in the corporation governing the institution. Three colleges did not submit information.

Considerable confusion in the relationships of the business office is found in a number of the colleges. Instead of the business officer being directly responsible to the president, the returns show that in five institutions he is directly responsible to the board of trustees. A similar situation exists in two other universities where the business officer is responsible to the State board of agriculture and to the governor as chairman of the State board of administration. Such an arrangement is not in accordance with orderly and systematic administration of educational activities. In both of these groups the authority of the president seems to be superseded. The business officer is under the supervision of the treasurer in another institution and is under the jurisdiction of both the chancellor and the regents in a second case. Thirty-two of the universities and colleges report that the business of fiscal officer is directly responsible to the president. Two institutions did not reply on this point.

If an effective centralized financial organization is to be established, if financial administration is to be placed on a sound basis, and if a systematic plan of procedure is to be enforced, it is essential that the chief business officer should have direct control over all business and fiscal affairs of the institution. In his office should be concentrated the receipt of money, handling of expenditures, purchasing, accounting, supervision of physical plant, management of business enterprises, and any other services on the campus involving the collection and disbursement of funds.

The survey made a special effort to ascertain the responsibilities of the chief business officer, the duties assigned to him in the institutional establishment, and the functions and activities of his office in the different land-grant universities and colleges. Table 1 gives a general analysis of the responsibilities and duties of the chief business officer in the 39 institutions furnishing information on this matter in the survey.

TABLE 1.—*Duties assigned to chief business officer*

Institution	Receipt of money	Handling of expenditures	Institutional purchasing	Institutional accounting	Secretary of governing board	Management of business services	Supervision of physical plant	Custodianship of funds
1	2	3	4	5	6	7	8	9
University of Arizona	X	X	X	X				
Colorado Agricultural College	X	X	X	X	X			
Connecticut Agricultural College	X	X	X	X		X	X	
University of Florida	X	X	X	X		X		
Georgia State College of Agriculture	X	X		X				X
University of Hawaii	X	X	X	X		X	X	X
University of Idaho	X	X	X	X		X	X	
University of Illinois	X	X	X	X				
Purdue University (Indiana)	X	X	X	X		X	X	
Iowa State College	X	X	X	X	X	X	X	X
University of Kentucky	X	X	X	X				
Louisiana State University	X	X	X	X			X	X
University of Maryland	X	X		X				
Massachusetts Agricultural College	X	X	X	X		X	X	X
Massachusetts Institute of Technology	X	X	X	X		X	X	X
Michigan State College	X	X	X	X	X	X	X	
University of Minnesota	X	X	X	X	X	X	X	
Mississippi Agricultural and Mechanical College	X	X	X	X	X	X	X	X
University of Missouri		X	X	X		X		
Montana State College	X	X		X				X
University of Nebraska	X	X		X				
University of New Hampshire	X	X	X	X		X		X
Rutgers University (New Jersey)	X	X	X	X		X	X	X
Cornell University (New York)	X	X	X	X	X	X	X	
North Carolina State College	X	X	X	X		X	X	
North Dakota Agricultural College	X	X	X	X				
Ohio State University	X	X	X	X	X	X	X	
Oklahoma Agricultural and Mechanical College	X	X		X				X
Oregon Agricultural College	X	X	X	X		X		
Pennsylvania State College	X	X	X	X		X		
Clemson Agricultural College (S. C.)	X	X		X	X			X
South Dakota State College	X	X	X	X	X	X	X	
University of Tennessee	X	X	X	X	X	X	X	
Agricultural and Mechanical College of Texas	X	X	X	X		X		X
Agricultural College of Utah	X	X	X	X	X			X
Virginia Agricultural and Mechanical College	X	X		X				X
State College of Washington	X	X	X	X		X		
University of Wisconsin	X	X	X	X		X	X	
University of Wyoming	X	X		X	X			
Total	38	39	31	39	12	24	18	15

As revealed in the table there is considerable variation in the duties assigned to the chief business officer. In a number of cases the responsibilities of the central business office are limited to the receipt of money, handling of expenditures, and accounting, while in others the authority of the office includes practically every business and fiscal activity of the institution.

Purchasing and disbursing are interrelated. The buying of an article and the payment of its cost are part of the same transaction. Sound business principles dictate that the officer having responsibility for disbursing funds should also have jurisdiction over purchasing made from such funds. It is found by an examination of the table that of the 39 land-grant colleges having a business officer charged with the handling of expenditures, 31 center control and supervision over institutional purchasing in his office. The question of whether a separate purchasing agency shall be set up under his supervision depends upon the size of the institution and the volume of purchasing.

According to the returns, there are 21 institutions where the business officer does the institutional purchasing. In 10 others where the purchases of equipment, supplies, and materials constitute large annual expenditures demanding the personal supervision of a single officer, the office of purchasing agent has been established directly responsible to the chief business office. A State central purchasing agency exercises partial control in 9 cases; the records indicate, however, that this arrangement does not relieve the institutional business officer of his responsibilities but frequently leads to duplication of work in the two offices. There are also four States where all the purchasing of the institution is done through a State purchasing agency. In two of these instances the local business officer functions in the same manner as if no central agency existed, while in the other two States the entire detail of purchasing is handled in the central State office.

Several practices prevail in the seven land-grant colleges which have not assigned the duty of purchasing to their chief business officer but conduct it through channels independent of his office. The purchasing is handled by the directors, deans, or heads of subject-matter departments with the approval of the president in two colleges. Such an arrangement is antiquated and is a survival of the old period when no business or fiscal officer existed in the institutions. Two other institutions have established separate purchasing agents who function independently of the chief business officer. In the case of the Oklahoma Agricultural and Mechanical College, the purchasing agent is responsible to the president, State board of agriculture, and the business manager, while in the University of Wyoming he is responsible to the president and the board of trustees. A similar arrangement is found in three other universities, the institutional purchasing agent being under the direct control of the

president in one case, the treasurer in a second, and the chancellor in a third. In one of these institutions the purchasing agent also serves as manager of the student supply store, an auxiliary enterprise which should be under the jurisdiction of the chief business officer.

General supervision and management of the physical plants comprise the duty of the chief business officer in only 18 of the 29 institutions. Since the upkeep of property, taking of annual inventories, preparation of pay rolls, employment of skilled and unskilled workers, payment of salaries, and operation of power plants are clearly either business or fiscal functions, it is difficult to understand why they have not been assigned to the central business office in more of the land-grant colleges. An explanation is probably found in the reluctance of chief executives to relinquish supervision over the physical plants; the returns disclose that the officer in charge of buildings and grounds is responsible directly to the president rather than the business officer in 19 universities and colleges. It is recognized, of course, that local conditions sometimes necessarily determine the type of organization, but in general all business and operating functions will be best managed through their consolidation in the business office.

It is in the management of business services and auxiliary enterprises, more than in any other institutional activity, that complexity of practice exists in the land-grant colleges. So diverse are the procedures that most of the institutions, except those that have adopted the definite policy of assigning this duty to the chief business officer, manage nearly every individual auxiliary or service enterprise in a different way. Practices not only vary as between different institutions, but also within the same institution. In many cases academic administrative officers as well as members of the teaching staff have been assigned business and financial responsibility over the auxiliary enterprises and services. The duty of managing auxiliary services has been assigned to the chief business officer in 24 out of the 44 institutions submitting reports.

The business or financial officer serves as secretary of the board of trustees or regents at 12 institutions. An obvious advantage to this arrangement is that the business officer attends all sessions of the governing body and is immediately at hand to furnish data regarding the financial and business affairs when information is desired by the members.

That the offices of the institutional treasurer and business manager are closely related is recognized by most of the institutions. The chief business officer is the treasurer in 15 universities and colleges, while in three others the treasurer is a subordinate official in his office. Seventeen of the institutions, however, have created a sepa-

rate position of treasurer. In some of them the activities performed consist of the receipt of all moneys collected by the business officer, their deposit in the bank, and the signing of all checks and vouchers. In other instances he is a local banker and only has custodianship of the institutional funds. One institution reports that the treasurer is a nonsalaried and nonresident officer. Members of the boards of trustees are treasurers in two universities. The State treasurer serves as institutional treasurer in the case of six universities, the business officer handling local financial affairs.

From the foregoing discussion of the duties and responsibilities connected with the financial and business functions of the land-grant institutions, it is evident that a fundamental principle that should be recognized by governing boards and chief executives is that there is a sharp line of demarcation between business and educational activities. The business officer should be responsible for the performance of the various business functions of the institution, including the collection, custodianship, and disbursement of funds; financial accounting; care of physical plant; purchasing; supervision of storerooms; management of dormitories and auxiliary enterprises. The educational organization should be responsible for the achievement of the academic and educational objectives of the institution.

It can not be too strongly emphasized that this principle applies to institutions of all sizes, degrees of complexity, and amounts of annual income. The ineffectual functioning of academic organizations, the inability of academic staffs to carry out their programs efficiently, and the difficulties encountered in the attainment of academic objectives may be traceable in part to failure to observe this principle.

A number of the land-grant colleges submitted charts of their business organizations. While the titles given the departments or subdivisions differ, the general plan is the same and illustrates the adoption of the principle of incorporating business and financial activities in a separate business organization instead of assigning them to independent organizations or to members of the educational organization. The business organization of Purdue University is divided into seven departments, which include accounting, finance, physical plant, purchase and stores, student organization finance, residence halls, and clerical and service personnel. In the case of the University of Wisconsin, the business organization consists of three departments—accounting, buildings and grounds, and purchasing—with subdivisions for dormitories and commons, student unions, loan and trust funds, general hospital, and other financial activities. Similarly, the University of Tennessee has a business

organization comprising four departments—one in charge of the bursar, a second in charge of the superintendent of buildings, a third in charge of the purchasing agent, and a fourth in charge of the auditor and accountant. While the University of Wyoming has a smaller business organization, consisting of but two departments of finance and physical properties, it handles all of the business and financial affairs of the institution, and the educational organization is a separate entity. There are a number of instances where the institutional business organization consists of a small centralized office in charge of a manager, who with the assistance of an accountant, a number of clerks, and a mechanical force not only handles all the financial and business activities but also the operations of the physical plant.

The business activities of the land-grant colleges have grown to enormous proportions during recent years. To perform them involves a vast amount of work in accounting, auditing, and payment of invoices. In order to obtain a conception of the volume of the business and financial operations of the institutions, data were collected in the survey on the various phases of the work for the fiscal year of 1928, which have been prepared in tabulated form and are presented in Table 2.

TABLE 2.—*Volume of business and financial operations in the land-grant colleges*

Institution	Requisitions received	Purchase orders issued	Invoices audited	Vouchers issued	Salary checks issued	Number of student fees collected	Number of fee refunds made
1	2	3	4	5	6	7	8
University of Arizona	7,500	4,000	25,000	10,000	8,000	16,000	4,000
University of California	14,088	27,626	94,000	2,908	16,865	46,415	3,776
Colorado Agricultural College	6,738	6,738	13,600	18,156	5,184	1,763	980
Connecticut Agricultural College	4,000	4,500	9,000	7,500	2,300	500	30
University of Florida	4,000	4,000	1,000	3,600	4,900	3,343	328
Georgia State College of Agriculture				16,119	3,138	1,691	9
University of Hawaii	3,500	3,300	10,165	2,540	1,920	940	
University of Idaho	5,000	3,000		4,893	4,421		
University of Illinois	16,502	14,118	15,000	49,677	21,646	14,071	2,015
Purdue University	16,242	16,409	16,245	16,245	17,938	11,026	150
Iowa State College	15,866	16,000	25,000	39,072		13,300	
Kansas State Agricultural College		10,000	20,000	5,800	14,400	35,000	10,000
University of Kentucky	12,750	11,747	11,260	9,560	7,354		
Louisiana State University	9,000	7,157	40,000	8,000	5,000	15,000	500
University of Maryland	4,250		11,000	8,070	8,580	5,830	85
Massachusetts Agricultural College	15,000		20,000		2,400		
Massachusetts Institute of Technology				8,000	2,500	2,750	200
University of Minnesota	21,323	15,602	41,918	22,700	63,306	30,044	15,644
Mississippi Agricultural and Mechanical College	3,000	4,000	6,000	15,000	7,200	1,450	25
University of Missouri	13,000	11,000	11,000	27,497	45,000		

TABLE 2.—*Volume of business and financial operations in the land-grant colleges*—Continued

Institution	Requisitions received	Purchase orders issued	Invoices audited	Vouchers issued	Salary checks issued	Number of student fees collected	Number of fee refunds made
1	2	3	4	5	6	7	8
Montana State College			1,800	3,700		3,000	1,100
University of Nebraska	12,803	12,703	25,000	19,728	12,000	25,432	3,500
University of Nevada	3,107	2,204	7,900	7,920	3,068	9,000	210
University of New Hampshire	12,428	12,209	13,159	8,550	1,321	4,299	70
Rutgers University	2,712	3,692	9,000	6,042	9,536	6,000	150
Cornell University	22,118	17,540	33,000	16,150	17,000	4,400	1,000
North Carolina State College	5,221	5,518	6,000	18,966	6,022	21,000	1,000
North Dakota Agricultural College	3,436	3,927	3,323	3,323	3,639	4,055	70
Ohio State University	11,718	13,348	125,000	31,056	19,006	40,000	10,000
Oklahoma Agricultural and Mechanical College	15,000	5,253	6,500	10,692	6,432	47,808	3,850
Oregon Agricultural College	16,960	8,116	76,912	17,250	12,036	10,401	188
Pennsylvania State College	11,871	11,871	23,078	31,007	13,127	11,663	1,668
South Dakota State College	8,000	4,409	4,361	4,098	2,563	4,566	184
University of Tennessee	7,127	7,127		18,712	5,628		
Agricultural and Mechanical College of Texas	5,600	14,000	14,000	29,939	13,900	24,000	500
Agricultural College of Utah	6,600	4,050	6,600	5,200	2,300	2,480	1,500
University of Vermont			12,405	12,405		1,376	67
Virginia Agricultural and Mechanical College	4,732	4,732		23,554	6,530	8,267	1,181
State College of Washington	7,200	7,760	14,065	4,415	13,446	75,000	3,500
University of Wisconsin	30,000	18,188	25,000	20,128	50,000	60,696	13,500
University of Wyoming	3,223	3,429	6,000	4,605	4,096	3,645	100
Total	361,615	319,274	783,291	572,775	443,702	566,211	81,078

Although full returns were not received from all the universities and colleges, an excellent idea is provided in this table of the great volume of business handled.

The heavy responsibilities involved in the management of the business organization necessitate that the officer in charge be of unquestioned ability, and specially trained in business and financial administration. To obtain service of this type requires the payment of salaries commensurate with the complex duties, the large obligations, and the responsibilities of the office. This has been generally recognized in the land-grant institutions where effective and well-functioning business organizations have been built up. In other colleges where the business organizations have been only partially segregated from the educational organizations, where bifurcated arrangements for handling financial and business affairs have been adopted, the salary is correspondingly small in amount. Table 3 shows the salaries paid the business officer, the officer serving under him in charge of funds or accounting, and the officer responsible for the purchasing.

TABLE 3.—*Salaries of chief business officers, chief accountants, and purchasing agents*

Institution	Salary of chief business officer	Salary of official in charge of accounting	Salary of official in charge of purchasing
1	2	3	4
Alabama Polytechnic Institute	$3,600		
Alaska Agricultural College and School of Mines	2,700	$2,400	
University of Arizona		3,600	$4,000
University of Arkansas	4,500	2,100	
University of California	10,000		
Colorado Agricultural College	3,700	3,100	
Connecticut Agricultural College	5,600	3,400	
University of Florida	4,400	2,400	
Georgia State College of Agriculture	5,550	2,400	
University of Hawaii	4,200		
University of Idaho	4,500	3,200	
University of Illinois	8,000	4,200	5,000
Purdue University	7,500	2,800	3,500
Iowa State College	7,500	2,100	
University of Kentucky	4,200	2,900	
Louisiana State University	4,800	1,800	
University of Maryland	4,500	3,000	3,800
Massachusetts Agricultural College	4,500	2,760	
Michigan State College	6,500	5,000	3,400
University of Minnesota	7,500	3,400	3,600
Mississippi Agricultural and Mechanical College		3,300	
University of Missouri	4,000	2,100	
Montana State College	2,900	1,900	
University of Nebraska	4,500	2,500	4,500
University of New Hampshire	3,400	1,900	
Rutgers University		2,250	3,300
Cornell University	10,000	6,000	5,500
North Carolina State College	5,000	4,500	
North Dakota Agricultural College		1,900	
Ohio State University	7,500	5,000	4,950
Oregon Agricultural College	4,500	2,800	
Pennsylvania State College	9,000	3,000	3,900
Clemson Agricultural College	4,000	3,000	
South Dakota State College	3,600	3,500	
University of Tennessee	5,600	2,000	
Agricultural and Mechanical College of Texas	4,000	3,750	
Agricultural College of Utah	2,900	2,300	
Virginia Agricultural and Mechanical College	2,400	2,400	
State College of Washington	5,200	2,700	
University of Wisconsin	8,500	3,000	4,000
University of Wyoming	3,300		

The salary paid the chief business officer in 28 of the 37 land-grant institutions reporting ranges from $4,000 to $10,000 annually. In these institutions the salary level compares very favorably with the remuneration of other administrative and educational officers. The institutions in which the salary range of the chief business officers is of a lower grade include in most instances those where the business organization does not handle all of the business and financial affairs.

The business officer receives compensation from $3,500 to $4,000 annually in 3 of these universities and colleges, from $3,000 to $3,500 in 2, from $2,500 to $3,000 in 3, and $2,400 in 1.

In the lower ranges the business officer is not paid much more than an assistant accountant or bookkeeper.

Where the administrative responsibilities and operation of the business organization are large the necessity arises for division into departments or branches, each in charge of a separate officer. One of the principal departments is that handling the funds, accounting, and auditing. The officer supervising such work is designated by various titles in the different institutions, such as bursar, treasurer, auditor, fiscal manager, or chief accountant. Substantial salaries are paid this officer in some of the larger universities.

In one institution the officer in charge of funds, auditing, and accounting receives $6,000 annually, in two others $5,000, and in two additional cases $4,500. At the remaining institutions his salary ranges from $4,000 down to $1,800. Another department or branch of the business organization has supervision of institutional purchasing, the officer in control being ordinarily designated as purchasing agent. The salaries paid this official in the 12 institutions submitting information range from $3,500 to $5,500.

The number of persons employed in the business office varies in accordance with the size of the institution. In the 40 institutions reporting, the total personnel is 402, omitting workers and mechanics in the purchasing and physical plant departments. The employees include assistant bursars, auditors, cashiers, secretaries, bookkeepers, accountants, statisticians, clerks, stenographers, typists, and telephone operators.

There are 5 institutions in which the personnel employed in the business offices consists of from 3 to 5 persons, 19 from 5 to 10, 7 from 10 to 15, 3 from 15 to 20, 3 from 20 to 25, 1 from 30 to 35, and 2 from 40 to 45. Compensation of the clerical and stenographic employees is on a fair scale, ranging from $1,200 to $1,800 annually. The lowest remuneration paid a full-time clerk in any of the institutions is $780 per year.

Chapter II.—Income and Receipts

Upon financial resources depend the standing of the institution, the extent and variety of its activities, the number of curricula offered, the number and salaries of the teaching staff, the size of the student body, the nature of the physical plant, and the available equipment for the conduct of its functions. The distribution of expenditures determines in a large measure the educational policy, the academic program, and the final attainment of objectives.

Notwithstanding the fact that finances constitute such an important phase of the land-grant college, no subject has been more neglected. Governing boards frequently content themselves with a general appraisal of the progress of their institutions. Chief executives keep themselves more or less informed of developments by periodical reports and overhead supervision of the different branches. More genuine knowledge, however, is obtainable on the exact status of the institution, whether progress is being made, whether the educational program is being carried out, and whether objectives are being achieved by a specific analysis of finances. The study of a financial sheet giving detailed items of income and expenditure for a fixed year as compared with previous years, providing such records are kept, reveals information that is basic and fundamental for revision of policies and changes of procedure. The proportion of support received from different sources over a period of years discloses data of intrinsic value in securing additional revenues. Comparative figures on expenditures among the various activities from year to year present an accurate criterion of whether they are being equitably distributed. With such a guide curtailment of excessive expenditures and augmentation of needed expenditures for the different functions may be effectively made.

Any survey of the finances of a group of higher educational institutions involves a careful review of tabulated material showing classifications of income by sources and amounts and of expenditures by distribution and by amounts. Compilations of salaries of the educational and administrative staffs, of capital investments in physical plants, of revenues from student fees, of student loan funds, of scholarships, of trust funds, and of revolving and rotary funds are essential. Each of the subjects will be taken up in turn.

Receipts

The land-grant college occupies a strategic financial position. It is supported by public taxation and is therefore reasonably assured of a stable income. Sources of support of private institutions are confined to interest on endowment, gifts, and student fees. Not only does the land-grant college enjoy practically all these sources of support but it also receives regular revenues from both the Federal and State Governments.

In an examination of the finances of the land-grant colleges, one fact of great significance is outstanding. There has been a remarkable and almost unbelievable increase in the receipts of the colleges during the past 20 years. So great has been the enhancement and so important the effect upon the entire problem of financing public institutions of higher education that no study would be complete without giving it consideration. It was the plan of this survey to secure data on the annual receipts and expenditures at 5-year intervals beginning with 1910 in order to make a comparative analysis of growth in resources. In the early years, however, the returns were so incomplete that any attempt at accurate appraisal is futile. Figures of reasonable accuracy were obtained for the year 1915, which can be compared with similar figures for the year 1928. Table 4 shows the receipts from Federal funds, State funds, private gifts, institutional funds, earnings, and miscellaneous sources for 1915 as compared with 1928 by institutions, with gains made during this period.

TABLE 4.—*Receipts of land-grant colleges from Federal funds, State funds, private gifts, institutional funds, earnings, and miscellaneous sources for 1915 and 1928, showing gains*

Institution	Receipts from Federal funds		Gain in income from Federal funds in 1928 over 1915	Receipts from State funds		Gain in income from State funds in 1928 over 1915
	1915	1928		1915	1928	
1	2	3	4	5	6	7
Alabama Polytechnic Institute	$87,780	$331,943	$244,163	$119,797	$671,834	$552,037
Alaska Agricultural College and School of Mines		50,000	50,000		90,300	90,300
University of Arizona	90,000	207,858	117,858	227,597	674,433	446,836
University of Arkansas	80,564	280,484	199,920	143,797	689,250	545,453
University of California	140,645	306,922	166,277	1,728,213	8,123,641	6,395,428
Colorado Agricultural College	105,450	214,332	108,882	152,109	619,226	467,117
Connecticut Agricultural College	81,750	154,791	73,041	39,500	600,240	560,740
University of Delaware	84,680	141,072	56,392	19,000	433,824	414,824
University of Florida	74,894	203,173	128,279	58,250	1,298,637	1,240,387
Georgia State College of Agriculture	58,287	301,808	243,521	103,000	400,730	297,730
University of Hawaii	50,000	52,864	2,864	28,645	542,249	513,804
University of Idaho	160,489	276,612	116,123	86,050	807,838	721,788
University of Illinois	122,462	396,997	274,535	2,286,500	5,833,412	3,546,912
Purdue University	107,000	355,471	248,471	548,450	2,033,181	1,484,731
Iowa State College	125,434	340,498	215,064	1,055,842	2,761,500	1,705,658
Kansas State Agricultural College	116,328	286,803	170,435	583,760	1,459,020	875,260
University of Kentucky	91,395	332,337	240,942	235,977	1,309,450	1,073,473
Louisiana State University	83,454	255,135	171,681	139,500	927,009	787,509
University of Maine	95,915	188,366	92,451	150,000	567,664	417,664
University of Maryland	85,797	211,672	125,965	39,000	693,621	654,621
Massachusetts Agricultural College	80,633	144,093	63,460	446,997	966,557	519,560
Massachusetts Institute of Technology	20,317	20,317	0	101,657		[1] 0
Michigan State College	160,385	334,267	173,882	309,147	2,130,990	1,821,843
University of Minnesota	151,098	436,146	285,048	2,063,913	4,713,231	2,649,318
Mississippi Agricultural and Mechanical College	79,144	296,425	217,281	191,891	594,635	402,744
University of Missouri	104,969	379,407	274,438	880,105	1,706,196	826,091
Montana State College	125,312	216,559	91,247	116,087	415,911	299,824
University of Nebraska	134,650	292,850	158,200	951,204	2,133,197	1,181,993
University of Nevada	106,306	158,541	52,235	93,208	295,075	201,867
University of New Hampshire	94,800	152,620	57,820	49,961	657,184	607,223
Rutgers University	95,787	214,603	118,816	71,061	1,456,719	1,385,658
New Mexico College of Agriculture and Mechanic Arts	90,000	167,312	77,312	23,712	148,366	124,654
Cornell University	121,429	376,605	255,176	946,745	2,038,033	1,091,288
North Carolina State College	81,000	344,249	263,249	85,000	996,745	111,745
North Dakota Agricultural College	149,831	274,423	124,592	67,811	506,983	439,172
Ohio State University	102,180	323,797	221,617	1,041,482	4,170,491	3,129,009
Oklahoma Agricultural and Mechanical College	85,000	436,423	351,423	182,350	980,000	797,650
Oregon Agricultural College	121,418	187,373	65,955	369,825	1,476,687	1,006,862
Pennsylvania State College	120,000	514,355	394,355	627,728	1,482,947	855,219
University of Porto Rico	50,000	50,384	384	110,182	613,777	503,595
Rhode Island State College	92,500	133,371	40,871	45,000	151,966	106,966
Clemson Agricultural College	70,754	256,768	186,014	155,860	918,294	762,434
South Dakota State College	125,335	257,395	132,060	94,523	408,760	314,237
University of Tennessee	102,210	334,584	232,374	99,245	1,327,684	1,228,439
Agricultural and Mechanical College of Texas	83,650	472,406	388,756	365,499	1,496,178	1,130,679
Agricultural College of Utah	107,601	175,572	67,971	111,632	344,350	232,718
University of Vermont	98,130	168,966	70,836	52,550	139,803	87,253
Virginia Agricultural and Mechanical College	93,992	310,703	216,711	160,407	744,736	584,329
State College of Washington	140,688	367,074	226,386	326,653	1,093,917	767,264
West Virginia University	86,000	254,885	166,885	256,000	1,419,732	1,163,732
University of Wisconsin	115,128	297,377	182,249	1,745,797	4,531,546	2,785,749
University of Wyoming	108,011	242,933	134,922	83,397	472,006	388,609
Total	5,130,482	13,481,921	8,351,439	19,971,616	71,123,755	51,152,139

[1] No gain.

TABLE 4.—*Receipts of land-grant colleges from Federal funds, State funds, private gifts, institutional funds, earnings, and miscellaneous sources for 1915 and 1928, showing gains*—Continued

Institution	Receipts from private gifts		Gain in income from private gifts in 1928 over 1915	Receipts from institutional funds		Gain in income from institutional funds in 1928 over 1915
	1915	1928		1915	1928	
	8	9	10	11	12	13
Alabama Polytechnic Institute		$11,255	$11,255	$12,889	$310,316	$297,427
Alaska Agricultural College and School of Mines					967	967
University of Arizona		334	334	5,029	223,003	217,974
University of Arkansas		1,080	1,080	15,525	106,018	90,493
University of California	$227,250	1,992,885	1,765,605	435,486	2,679,324	2,243,838
Colorado Agricultural College				9,684	106,571	96,887
Connecticut Agricultural College		2,393	2,393	15,715	123,061	107,346
University of Delaware	200,000	51,506	248,494	9,526	112,316	102,790
University of Florida	1,750		[1] 0	4,102	266,850	262,748
Georgia State College of Agriculture	8,686	42,521	43,835	6,710	80,789	74,079
University of Hawaii	1,500	1,005	[1] 0	137	39,313	39,176
University of Idaho				989	63,461	62,472
University of Illinois		133,050	133,050	236,151	923,889	687,738
Purdue University	2,048	20,103	18,055	83,543	490,608	407,065
Iowa State College	1,125		[1] 0	78,838	441,572	362,734
Kansas State Agricultural College		4,191	4,191	38,035	351,250	313,215
University of Kentucky	3,750	6,279	2,529	15,562	192,508	176,946
Louisiana State University		5,664	5,664	13,492	197,149	183,657
University of Maine	13,750	101,146	87,396	60,358	224,644	64,286
University of Maryland		13,068	13,068		1,043,179	1,043,179
Massachusetts Agricultural College				8,129	79,775	71,646
Massachusetts Institute of Technology	777,267	1,110,607	330,340	531,244	2,555,948	2,024,704
Michigan State College				36,434	284,750	248,316
University of Minnesota		197,671	197,671	248,719	2,593,169	2,344,450
Mississippi Agricultural and Mechanical College				13,277	109,766	96,489
University of Missouri		55,245	55,245	127,929	641,537	513,608
Montana State College		5,000	5,000	9,027	50,162	41,135
University of Nebraska				85,214	479,418	394,204
University of Nevada		28,508	28,508	9,605	88,569	78,964
University of New Hampshire	125	1,771	1,646	48,912	339,286	90,374
Rutgers University	73,001	298,504	525,503	70,206	864,553	794,347
New Mexico College of Agriculture and Mechanic Arts				1,839	11,912	10,073
Cornell University	201,484	2,104,345	1,902,861	1,297,923	3,007,801	1,709,878
North Carolina State College		3,258	3,258	24,402	234,360	209,958
North Dakota Agricultural College		9,000	9,000	15,651	46,635	30,984
Ohio State University	9,150	22,027		239,420	1,688,085	1,448,665
Oklahoma Agricultural and Mechanical College		2,560	2,560	5,300	242,630	237,330
Oregon Agricultural College		6,267	6,267	32,565	279,946	247,381
Pennsylvania State College	6,000	345,666	12,877	69,823	873,061	803,238
University of Porto Rico		3,000	3,000	2,168	41,249	39,081
Rhode Island State College				5,737	52,999	47,262
Clemson Agricultural College				8,745	94,647	85,902
South Dakota State College				13,207	68,184	54,977
University of Tennessee	3,450	14,221	10,771	58,893	286,977	228,084
Agricultural and Mechanical College of Texas				3,627	449,026	445,399
Agricultural College of Utah	700	4,843	4,143	10,019	59,930	49,911
University of Vermont	2,505	362,920	360,415	90,153	457,656	367,503
Virginia Agricultural and Mechanical College				27,111	93,642	66,531
State College of Washington		7,133	7,133	8,877	188,065	179,188
West Virginia University				27,014	335,421	308,407
University of Wisconsin	13,710	123,536	109,826	461,673	1,392,028	930,355
University of Wyoming		300	300	5,089	99,649	94,560
Total	1,547,251	7,392,862	5,845,611	4,639,763	26,067,624	21,427,861

[1] No gain.

TABLE 4.—*Receipts of land-grant colleges from Federal funds, State funds, private gifts, institutional funds, earnings, and miscellaneous sources for 1915 and 1928, showing gains*—Continued

Institution	Receipts from earnings, miscellaneous income		Gain in income of earnings and receipts in 1928 over 1915	Total income from all sources for 1915	Total income from all sources for 1928	Gain in total income in 1928 over 1915
	1915	1928				
	14	15	16	17	18	19
Alabama Polytechnic Institute	$19,789	$258,763	$238,874	$240,255	$1,584,111	$1,343,856
Alaska Agricultural College and School of Mines		5,646	5,646		146,913	146,913
University of Arizona	8,856	166,087	157,231	331,482	1,271,715	940,233
University of Arkansas	19,529	227,357	207,828	259,415	1,304,189	1,044,774
University of California	292,349	517,052	324,703	2,823,943	13,619,824	10,795,881
Colorado Agricultural College	25,528	166,723	141,195	292,771	1,106,852	814,081
Connecticut Agricultural College	60,211	415,405	355,194	197,236	1,295,890	1,098,654
University of Delaware	13,819	128,026	114,207	327,025	866,744	539,719
University of Florida	1,017	327,804	326,787	140,013	2,096,464	1,956,451
Georgia State College of Agriculture	22,578	157,045	134,467	199,621	982,893	783,632
University of Hawaii	4,212	88,185	83,973	84,494	723,616	639,122
University of Idaho	10,041	201,665	191,624	257,569	1,349,576	1,092,007
University of Illinois	213,915	661,990	448,075	2,859,028	7,949,338	5,090,310
Purdue University	186,184	1,036,861	850,677	927,225	3,936,224	3,008,999
Iowa State College	104,244	596,902	492,658	1,365,483	4,140,472	2,774,989
Kansas State Agricultural College	191,829	394,850	203,021	929,952	2,496,114	1,566,162
University of Kentucky	3,178	375,496	372,318	349,862	2,216,070	1,866,208
Louisiana State University	33,330	209,514	176,184	269,776	1,594,471	1,324,695
University of Maine	47,230	193,572	146,342	367,253	1,275,392	908,139
University of Maryland	22,322	383,120	360,798	147,129	2,344,660	2,197,531
Massachusetts Agricultural College	83,366	318,145	234,779	619,125	1,508,570	889,445
Massachusetts Institute of Technology	5,216	318,526	313,310	1,435,701	4,005,398	2,569,697
Michigan State College	115,580	446,304	330,724	621,546	3,196,311	2,574,765
University of Minnesota	261,452	1,784,757	1,523,305	2,725,182	9,724,974	6,999,792
Mississippi Agricultural and Mechanical College	169,285	706,548	437,263	453,597	1,707,374	1,253,777
University of Missouri	117,616	831,770	714,154	1,230,519	3,668,155	2,437,636
Montana State College	11,625	98,238	86,613	262,051	785,870	523,819
University of Nebraska	184,736	795,378	610,642	1,355,804	3,700,843	2,345,039
University of Nevada	3,601	113,841	110,240	202,720	684,534	481,814
University of New Hampshire	66,766	306,900	240,134	260,564	1,457,761	1,197,197
Rutgers University	10,612	700,023	689,411	320,667	3,834,402	3,513,735
New Mexico College of Agriculture and Mechanic Arts	5,014	94,186	89,172	120,565	421,776	301,211
Cornell University	409,826	2,182,686	1,772,860	2,977,407	9,709,470	6,732,063
North Carolina State College	24,103	518,657	494,554	214,505	2,097,269	1,882,764
North Dakota Agricultural College	19,943	156,044	136,101	253,236	993,085	739,849
Ohio State University	56,252	599,663	543,411	1,448,484	6,804,063	5,355,579
Oklahoma Agricultural and Mechanical College	15,334	382,545	167,211	287,984	2,044,158	1,756,174
Oregon Agricultural College	30,371	325,790	295,419	554,179	2,276,063	1,721,884
Pennsylvania State College	123,757	659,244	535,487	947,308	3,875,273	2,927,965
University of Porto Rico	4,639	39,192	34,553	166,989	747,602	580,613
Rhode Island State College	13,045	121,175	108,130	156,282	459,511	303,229
Clemson Agricultural College	12,246	316,776	304,530	247,605	1,586,485	1,338,880
South Dakota State College	49,632	273,702	224,070	282,697	1,008,041	725,344
University of Tennessee	19,438	448,236	428,798	283,236	2,411,702	2,128,466
Agricultural and Mechanical College of Texas	43,899	1,641,883	1,597,984	496,675	4,059,493	3,562,818
Agricultural College of Utah	9,701	64,806	55,105	239,653	649,501	409,848
University of Vermont	26,418	168,457	142,039	269,756	1,297,802	1,028,046
Virginia Agricultural and Mechanical College	66,530	834,429	767,899	348,040	1,983,510	1,635,470
State College of Washington	65,547	266,900	201,353	541,765	1,923,089	1,381,324
West Virginia University	29,285	291,743	262,458	398,299	2,301,781	1,903,482
University of Wisconsin	289,039	1,643,417	1,354,378	2,625,347	7,987,904	5,362,557
University of Wyoming	4,650	153,922	149,272	201,147	968,810	767,663
Total	3,628,695	24,115,946	20,487,251	34,917,807	142,182,108	107,264,301

Total receipts of the 52 land-grant colleges from all sources for 1928 amounted to $142,182,108 as compared with $34,917,807 for 1915, an increase of $107,264,301, or 310 per cent.

The mere presentation of a large increase in total revenue provides little information of real value. A complete analysis by sources is needed for a better appraisal. Limitations are placed on the use of income derived by land-grant colleges from some sources while from others it is available for any purpose. Other revenues represent funds only partially related or wholly unrelated to educational work. Of the total increase of $107,264,301 between 1915 and 1928, the amounts of gain from each source with percentages of the total are shown in Table 5.

TABLE 5.—*Amounts and percentages of gain in revenues between 1915 and 1928*

Source	Amount of gain	Percentage of total
From Federal funds	$8, 351, 439	7. 7
From State funds	51, 152, 139	47. 7
From private gifts	5, 845, 611	5. 5
From institutional funds	21, 427, 861	20. 0
From earnings and miscellaneous revenues	20, 487, 251	19. 1
Total	107, 264, 301	100. 0

The general impression prevails that the enormous advance in receipts of land-grant colleges and State universities is due almost entirely to increased support from the States. Yet in this analysis, it is shown that but 47 per cent of the total gain made over the 13-year period was actually contributed by the States for the upbuilding of the institutions. The remaining 53 per cent of the total increase came from other sources, including Federal funds, private gifts, institutional funds, and earnings and miscellaneous revenues of the colleges. An examination of the percentage of increase from the various sources shows a similar situation. The total receipts for 1915 and 1928 of all the institutions with percentages of increases for each source is presented in Table 6.

TABLE 6.—*Receipts for 1915 and 1928 with percentages of increases from each source*

Source	Income for 1915	Income for 1928	Amount of increase	Percentage of increase
From Federal source	$5, 130, 482	$13, 481, 921	$8, 351, 439	162
From State source	19, 971, 616	71, 123, 755	51, 152, 139	256
From private gifts	1, 547, 251	7, 392, 862	5, 845, 611	377
From institutional funds	4, 639, 763	26, 067, 624	21, 427, 861	461
From earnings and miscellaneous revenues	3, 628, 695	24, 115, 946	20, 487, 251	564

The percentage of increase in the income of the colleges from State sources between 1928 and 1915 was 256 per cent. In the case of only one other source, Federal funds, which amounted to 162 per cent, was the percentage of increase less. The percentage of increase from private gifts was 377 per cent, or 122 per cent greater than the percentage of increase from State funds. Revenues from institutional funds showed a percentage of increase of 461 per cent between 1928 and 1915, while the percentage of increase from earnings and miscellaneous revenues was 564 per cent.

It is, therefore, apparent that not only the greater proportion of the increased receipts of the land-grant institutions was derived from sources other than the States, but the revenues received from other sources show far larger percentages of increase. The ordinary assumption is that the agency controlling an educational institution contributes the major portion of its support. The land-grant colleges are State-controlled. They are integral parts of the State systems of public education. In view of these facts these figures are of special interest.

Attention has already been called to the fact that expenditure of the income of the colleges from certain sources is limited to specific purposes. For instance, of the total increase of $8,351,439 made between 1915 and 1928 in income from Federal sources, nothing was available for the support of undergraduate agricultural, mechanic arts, and academic branches, there being no increase in Federal appropriations for these purposes during the period. The entire amount was for the expansion of research in the agricultural experiment stations, for cooperative agricultural and home economics extension work, and for training of vocational teachers in the colleges. A large part of the increase in income from private gifts was also subject to limitations placed on its use. Other portions of the increased receipts were noneducational in character. The increase in earnings and miscellaneous revenues of the land-grant institutions between 1915 and 1928 amounting to $20,487,251 represented additional receipts from residence, dining halls, and other rotary funds, which could not be utilized for educational development. The gain of $21,427,861 in institutional funds was only partially available for academic purposes. It consisted in part of additional revenues from student fees and interest on trust funds. The remainder was made up of enhanced receipts from athletics.

It must be understood that the computations just presented refer to the land-grant colleges as a group and not to individual institutions. No attempt has been made to evaluate the proportion of gain in the total receipts of any particular college contributed by the State as compared with other sources nor the percentage of increase

from different sources, although the figures are available in the table. There are a number of the land-grant institutions to which the State has provided the greater proportion of income gains between 1915 and 1928 and where the percentage of increase from State sources far exceeds such percentage from other sources.

The total 1928 receipts of all the land-grant institutions amounted to $142,182,108 of which $13,481,921 consisted of Federal funds, $71,123,755 of State funds, $7,392,862 of private gifts, $15,388,563 of student fees, $10,679,061 of other institutional receipts, $17,218,257 of earnings, and $6,897,689 of miscellaneous receipts, as shown in Table 7. Federal receipts comprise 9.5 per cent of the total, State appropriations 50 per cent, private gifts 5.2 per cent, student fees 10.8 per cent, other institutional receipts 7.5 per cent, earnings 12.1 per cent, and miscellaneous receipts 4.9 per cent. The States contributed 50 per cent of the receipts of the colleges for 1928, while the remaining 50 per cent was obtained from other sources.

TABLE 7.—*Receipts for fiscal year of 1923*

Institution	Federal receipts	Percentage	State appriations	Percentage	Private gifts	Percentage
1	2	3	4	5	6	7
Alabama Polytechnic Institute	$331,943	21.0	$671,834	42.4	$11,255	.7
Alaska Agricultural College and School of Mines	50,000	34.0	90,300	61.5		
University of Arizona	207,858	16.3	674,433	53.0	334	.03
University of Arkansas	280,484	21.5	689,250	52.9	1,080	.08
University of California	306,922	2.3	8,123,641	59.6	1,992,885	14.6
Colorado Agricultural College	214,332	19.4	619,226	55.9		
Connecticut Agricultural College	154,971	11.9	600,240	46.3	2,393	.2
University of Delaware	141,072	16.3	433,824	50.0	51,506	5.9
University of Florida	203,173	9.7	1,298,637	62.0		
Georgia State College of Agriculture	301,808	30.7	400,730	40.8	42,521	4.3
University of Hawaii	52,864	7.3	542,249	75.0	1,005	.1
University of Idaho	276,612	20.5	807,838	59.9		
University of Illinois	396,997	5.0	5,833,412	73.4	133,050	1.7
Purdue University	355,471	9.0	2,033,181	51.6	20,103	.5
Iowa State College	340,498	8.2	2,761,500	66.7		
Kansas State Agricultural College	286,803	11.5	1,459,020	58.4	4,191	.2
University of Kentucky	332,337	15.0	1,309,450	59.1	6,279	.3
Louisiana State University	255,135	16.0	927,009	58.1	5,664	.4
University of Maine	188,366	14.8	567,664	44.5	101,146	7.9
University of Maryland	211,672	9.0	693,621	29.6	13,068	.6
Massachusetts Agricultural College	144,093	9.5	966,557	64.1		
Massachusetts Institute of Technology	20,317	.5			1,110,607	27.7
Michigan State College	334,267	10.5	2,130,990	66.7		
University of Minnesota	436,146	4.5	4,713,231	48.5	197,671	2.0
Mississippi Agricultural and Mechanical College	296,425	17.4	594,635	34.8		
University of Missouri	379,407	10.4	1,760,196	48.0	55,245	1.5
Montana State College	216,559	27.6	415,911	52.9	5,000	.6
University of Nebraska	292,850	7.9	2,133,197	57.6		
University of Nevada	158,541	23.2	295,075	43.1	28,508	4.2
University of New Hampshire	152,620	10.5	657,184	45.1	1,771	.1
Rutgers University	214,603	5.6	1,456,719	38.0	598,504	15.6
New Mexico College of Agriculture and Mechanic Arts	167,312	39.7	148,366	35.2		
Cornell University	376,605	3.9	2,038,033	21.0	2,104,345	21.7
North Carolina State College	344,249	16.4	996,745	47.5	3,258	.2
North Dakota Agricultural College	274,423	27.6	506,983	51.1	9,000	.9
Ohio State University	323,797	4.8	4,170,491	61.3	22,027	.3
Oklahoma Agricultural and Mechanical College	436,423	21.4	980,000	47.9	2,560	.1
Oregon Agricultural College	187,373	8.2	1,476,687	64.9	6,267	.3
Pennsylvania State College	514,355	13.3	1,482,947	38.3	345,666	8.9
University of Porto Rico	50,384	6.8	613,777	82.1	3,000	.4
Rhode Island State College	133,371	29.0	151,966	33.1		
Clemson Agricultural College	256,768	16.2	918,294	57.9		
South Dakota State College	257,395	25.5	408,760	40.6		
University of Tennessee	334,584	13.9	1,327,684	55.0	14,221	.6
Agricultural and Mechanical College of Texas	472,406	11.6	1,496,178	36.9		
Agricultural College of Utah	175,572	27.0	344,350	53.0	4,843	.8
University of Vermont	168,966	13.0	139,803	10.8	362,920	28.0
Virginia Agricultural and Mechanical College	310,703	15.7	744,736	37.5		
State College of Washington	367,074	19.1	1,093,917	56.9	7,133	.4
West Virginia University	254,885	11.1	1,419,732	51.7		
University of Wisconsin	297,377	3.7	4,531,546	56.7	123,536	1.6
University of Wyoming	242,933	25.1	472,006	48.7	300	.03
Total	13,481,921	9.5	71,123,755	50.0	7,392,862	5.2

showing percentages from various sources

Receipts from student fees	Percentage	Other institutional revenues	Percentage	Earnings	Percentage	Miscellaneous receipts	Percentage	Grand total receipts
8	9	10	11	12	13	14	15	16
$138,888	8.7	$171,428	10.9	$160,563	10.1	$98,200	6.2	$1,584,111
967	.7			3,721	2.5	1,925	1.3	146,913
103,609	8.1	119,394	9.4	142,254	11.2	23,833	1.9	1,271,715
97,415	7.4	8,603	.7	32,997	2.5	194,360	14.9	1,304,189
1,591,736	11.6	1,087,588	8.1	359,526	2.6	157,526	1.2	13,619,824
43,046	3.8	63,525	5.8	112,932	10.2	53,791	4.9	1,106,852
91,615	7.0	31,446	2.5	415,405	32.1			1,295,890
74,943	8.6	37,373	4.4	127,939	14.8	87	.01	866,744
130,864	6.2	135,986	6.5	191,056	9.1	136,748	6.5	2,096,464
64,017	6.5	16,772	1.7	131,390	13.4	25,655	2.6	982,893
38,896	5.3	417	.1	68,185	9.4	20,000	2.8	723,616
46,787	3.4	16,674	1.3	201,665	14.9			1,349,576
850,748	10.7	73,141	.9	544,548	6.8	117,442	1.5	7,949,338
319,141	8.0	171,467	4.5	400,582	10.2	636,279	16.2	3,936,224
387,219	9.3	54,353	1.4	544,669	13.1	52,233	1.3	4,140,472
263,192	10.5	88,058	3.6	393,898	15.8	952	.04	2,496,114
172,127	7.7	20,381	1.0	257,743	11.6	117,753	5.3	2,216,070
100,220	6.3	96,929	6.1	71,637	4.5	137,877	8.6	1,594,471
189,414	14.8	35,230	2.8	193,572	15.2			1,275,392
577,276	24.6	465,903	19.9	354,757	15.1	28,363	1.2	2,344,660
58,264	3.1	21,511	2.2	258,810	17.2	59,335	3.9	1,508,570
897,262	22.4	1,658,686	41.4	318,526	8.0			4,005,398
281,140	8.7	3,610	.2	446,304	13.9			3,196,311
1,045,349	10.7	1,547,820	16.0	387,369	4.0	1,397,388	14.3	9,724,974
70,724	4.1	39,042	2.3	542,113	31.8	164,435	9.6	1,707,374
447,079	12.1	194,458	5.4	404,999	11.0	426,771	11.6	3,668,155
38,299	4.8	11,863	1.6	86,196	11.0	12,042	1.5	785,870
479,074	12.9	344	.1	795,378	21.5			3,700,843
45,542	6.6	43,027	6.3	81,972	12.0	31,869	4.6	684,534
183,902	12.5	155,384	10.8	303,125	20.8	3,775	.2	1,457,761
643,156	16.7	221,397	5.8	542,887	14.2	157,136	4.1	3,834,402
7,576	1.7	4,336	1.1	58,433	13.8	35,753	8.5	421,776
1,438,304	14.8	1,569,497	16.2	1,429,299	14.7	753,387	7.7	9,709,470
140,142	6.6	94,218	4.6	318,125	15.2	200,532	9.5	2,097,269
45,505	4.5	1,130	.2	120,978	12.2	35,066	3.5	993,085
717,080	10.5	971,005	14.3	369,526	5.4	230,137	3.4	6,804,063
48,134	2.3	194,496	9.6	205,473	10.0	177,072	8.7	2,044,158
268,946	11.8	11,000	.5	224,423	9.9	101,367	4.4	2,276,063
789,244	20.3	83,817	2.2	657,744	17.0	1,500	.4	3,875,273
41,249	5.5			39,192	5.2			747,602
13,274	2.9	39,725	8.6	116,918	25.5	4,257	.9	459,511
25,233	1.6	69,414	4.4	277,902	17.5	38,874	2.4	1,586,485
68,184	6.8			96,092	9.5	177,610	17.6	1,008,041
246,296	10.2	40,681	1.7	281,089	11.7	167,147	6.9	2,411,702
85,401	2.2	363,625	8.9	1,209,742	29.8	432,141	10.6	4,059,493
59,930	9.2			42,176	6.5	22,630	3.5	64 001
352,171	27.1	105,485	8.1	147,960	11.4	20,497	1.6	1,297,802
80,413	4.0	13,229	.7	679,669	34.3	154,760	7.8	1,983,510
134,550	6.9	53,515	2.9	175,858	9.1	91,052	4.7	1,923,089
253,405	11.0	82,016	3.5	174,511	7.6	117,232	5.1	2,301,781
1,041,576	13.0	350,452	4.4	1,588,858	19.9	54,559	.7	7,987,904
60,039	6.0	39,610	4.3	127,581	13.2	26,341	2.7	968,810
15,388,563	10.8	10,679,061	7.5	17,218,257	12.1	6,897,689	4.9	142,182,108

Federal grants, as disclosed in the table, represent a substantial part of the total receipts of some of the land-grant colleges. In others they make up a comparatively insignificant portion. Of the 52 institutions, the New Mexico College of Agriculture and Mechanic Arts secures the largest proportion of its total income from Federal funds, the percentage being 39.7. The Alaska Agricultural College receives the second largest proportion with a percentage of 34. Third on the list is the Georgia State Agricultural College, Federal receipts comprising 30.7 per cent of its total income.

The proportion of receipts from Federal funds ranged from 25 to 27 per cent in the case of 3 institutions, from 20 to 25 per cent in 5 institutions, from 15 to 20 per cent in 10 institutions, from 10 to 15 per cent in 11 institutions, from 5 to 10 per cent in 11 institutions, and less than 5 per cent in the remaining 6 institutions.

It is patent from this brief review that a number of the colleges are depending to a great extent upon Federal appropriations for their support. When an institution receives 25 per cent or more of its total receipts from the Federal Government steps should be taken to secure increased revenues from other sources. It was never contemplated that the annual subsidies of the Federal Government should provide a large proportion of the operating costs of the land-grant colleges after the impetus to development had been given. Federal funds are designed to stimulate local support of the institutions.

Being States owned, State controlled, and State operated, land-grant colleges and State universities should receive the major portion of their support from State appropriations. According to the data presented in the tabulation, the principle has been recognized in the case of many of the institutions. In others, so considerable a proportion of their receipts is secured from other sources as to constitute a problem worthy of the serious consideration of their governing boards and executive officers. The institution receiving the greater part of its support for the fiscal year of 1928 from public sources was the University of Porto Rico, the percentage being 82.1. In the case of the University of Hawaii, the proportion of public income to total income was 75 per cent. There were nine other institutions where the States provided a larger percentage of the total income, the percentages ranging from as high as 73.4 per cent to 61.3 per cent.

Of the remaining colleges, the table shows 11 which receive from 55 to 60 per cent of their total income from State appropriations, 7 from 50 to 55 per cent, 7 from 45 to 50 per cent, 5 from 40 to 45 per cent, 5 from 35 to 40 per cent, 2 from 30 to 35 per cent, 1 from 25 to 30 per cent, and 1 from 20 to 25 per cent.

Only 10.6 per cent of the total income of the University of Vermont is derived from State appropriations. The Massachusetts Institute of Technology receives no State appropriations whatever for its support.

Revenues from private gifts comprise a minor proportion of the income of most of the institutions. The table indicates that 16 land-grant colleges received no income in 1928 from this source. While 36 others were the recipients of private gifts, the amounts were not generally large, although in a few instances the proportion of the income was substantial. The University of Vermont in 1928 received from private gifts 28 per cent of its total income, the highest of any of the land-grant colleges. Revenues from this source exceeded State appropriations for its support by approximately 20 per cent. The institution with the second largest proportion of its income from private gifts was the Massachusetts Institute of Technology, the percentage being 27.7.

Rutgers University received 15.6 per cent of its total income from this source, University of California 14.6 per cent, Pennsylvania State College 8.9 per cent, University of Maine 7.9 per cent, and University of Delaware 5.9 per cent. In the remainder the proportion of total receipts from private gifts ranged from 4.3 per cent down to 0.05 per cent, comparatively insignificant amounts when other sources of income are considered.

A number of the institutions with large annual revenues from private gifts were founded as private schools and later were made the land-grant colleges of their States.

The land-grant colleges are not free institutions of higher education, as is quite frequently supposed. There are no institutions which did not receive some income from student fees in 1928. As the entire subject of student fees will be taken up in detail in a later part of the survey of finances, it will be sufficient at this point to indicate the percentages of the total receipts derived from this source. The institution with the greatest proportion of receipts derived from student fees is the University of Vermont, the percentage amounting to 27.1. The University of Maryland was next highest with revenues from student fees amounting to 24.6 per cent of its total receipts. In view of the fact that both of these institutions are State universities, the situation is unusual. Student fees comprise 22.4 per cent of the total receipts of the Massachusetts Institute of Technology, which is in reality a private institution, and in 6 other colleges it varies from 20.3 to 13 per cent.

As shown in the table, there were 6 institutions where the revenues from student fees make up from 10 to 12 per cent of the total income; 20 in which they amounted to from 5 to 9 per cent; and 11 in which they were less than 5 per cent.

Among the colleges with very small proportion of their receipts derived from student fees were the Agricultural and Mechanical College of Texas, New Mexico College of Agriculture and Mechanic Arts, and Clemson Agricultural College. The Alaska Agricultural College realized but 0.7 per cent of its total revenues from this source.

Income from other institutional sources, such as interest on endowment, trust funds, bank deposits, rentals, hospital and athletic receipts, constitute varying percentages of the total receipts of the institutions. With the exception of interest on endowment and trust funds, only a small portion of such resources are actually available for general institutional expenses. The Massachusetts Institute of Technology secured from other institutional revenues the largest proportion of its total receipts of any of the land-grant colleges in 1928. It amounted to 41.4 per cent and consisted almost entirely of interest on endowment. Other institutions derived a much smaller proportion from this source. In the case of the University of Maryland, the next highest on the list, the proportion was 19.9 per cent. Cornell University secured 16.2 per cent of its total income from other institutional revenues, University of Wisconsin 16 per cent, Ohio State University 14.3 per cent, Alabama Polytechnic Institute 10.9 per cent, and University of New Hampshire 10.8 per cent. In the remainder, the percentage of revenues from other institutional sources was less than 10 per cent, and in 29 of these it was less than 5 per cent. Four institutions reported no revenues from other institutional sources.

Under the title of "earnings" are included the gross receipts of all institutional activities of an income-producing type, such as residence and dining halls, creameries, hospitals, bookstores, farms, etc. In the case of the Virginia Agricultural and Mechanical College, these receipts represented more than one-third of its total receipts, the percentage being 34.3. The Connecticut Agricultural College also recorded a proportion of 32.1 per cent. At Mississippi Agricultural and Mechanical College they amounted to 31.8 per cent, at the Agricultural and Mechanical College of Texas 29.8 per cent, and at the Rhode Island State College 25.5 per cent, all being in excess of one-fourth of the income from all sources.

The proportion of these receipts to total receipts of the University of Nebraska was 21.5 per cent and of the University of New Hampshire 20.8 per cent. Eight other colleges had percentages ranging from 15 to 20 per cent. In the remainder the proportion was between 10 and 15 per cent in 21 institutions, between 5 and 10 per cent in 11, and below 5 per cent in 5.

A more detailed review of these "earnings" will be taken up in another part of this report.

Miscellaneous receipts consist principally of income expendable for limited purposes. The main items are county and other funds for agricultural and home economics extension and donations for specific research. Miscellaneous receipts of the South Dakota State College represented 17.6 per cent of its total revenues, being the greatest proportion. Purdue University had the second largest proportion with 16.2 per cent, while the University of Arkansas and the University of Minnesota were next on the list with 14.9 per cent and 14.3 per cent, respectively.

Income from miscellaneous sources of the University of Missouri was 11.6 per cent and of the Agricultural and Mechanical College of Texas 10.6 per cent. In 12 other institutions the proportion of income from this source was between 5 and 10 per cent, in 21 between 1 and 5 per cent, and in 6 less than 1 per cent. There were 7 land-grant colleges that reported no miscellaneous receipts in 1928.

The preceding discussion has been confined to the general system of financing the land-grant colleges. The income, however, is secured from a wide variety of specific sources. Upon the source from which particular revenues are derived depends the purpose for which they shall be expended. The fact that an institution has a large total income does not necessarily indicate that it possesses resources for the development of a general educational program. On the contrary, a considerable proportion of the income may be subject to limitations as to expenditure and use. Some of the land-grant institutions have ample funds for the support of certain branches or divisions while at the same time they lack funds to maintain other colleges or departments on an adequate basis.

Support given the land-grant colleges by the Federal Government consists of six different funds. None may be utilized for general institutional purposes. Federal funds are based on the Land Grant Act of 1862 constituting an endowment, the annual interest from which is available for the teaching of agriculture and mechanic arts and for the liberal and practical education of the industrial classes; the Morrill Act of 1890 and the Nelson Amendment of 1907, providing direct appropriations for instruction in agriculture, mechanic arts, the English language, and branches of mathematical, physical,

natural, and economic sciences; the Smith-Hughes Act, providing funds for vocational teacher training; the Hatch-Adams Acts, providing funds for agricultural experimentation; the Purnell Act, providing additional funds for agricultural research; and the Smith-Lever Act, providing funds for agriculture and home economics extension. Table 8 presents a compilation of the revenues classified according to the different Federal funds for 1928.

TABLE 8.—*Income of land-grant colleges from Federal Government for 1928 classified by different funds*

Institution	Interest on land-grant fund of 1862 and others	Morrill and Nelson funds	Smith-Hughes funds	Hatch-Adams funds	Purnell funds	Smith-Lever funds	Other Federal funds	Total Federal funds
1	2	3	4	5	6	7	8	9
Alabama Polytechnic Institute	$20,280	$31,140	$7,322	$30,000	$40,000	$203,201		$331,943
Alaska Agricultural College and School of Mines		50,000						50,000
University of Arizona	55,097	50,000		30,000	40,000	32,761		207,858
University of Arkansas	6,633	36,363	3,911	30,000	40,000	163,577		280,484
University of California	48,387	50,000	13,474	30,000	40,000	125,061		306,922
Colorado Agricultural College	25,540	50,000	7,691	30,000	40,000	61,101		214,332
Connecticut Agricultural College	7,589	50,000	5,522	15,000	20,000	56,680		154,791
University of Delaware	4,980	40,000	5,350	30,000	40,000	20,742		141,072
University of Florida	11,357	25,000		30,000	40,000	74,765	$22,051	203,173
Georgia State College of Agriculture	11,954	33,333	15,739			237,782		301,808
University of Hawaii		50,000	2,211				653	52,864
University of Idaho	113,744	50,000		30,000	40,000	42,868		276,612
University of Illinois	32,451	50,000	16,050	30,000	40,000	228,496		396,997
Purdue University	17,000	50,000	26,734	30,000	40,000	162,087	30,450	355,471
Iowa State College	31,153	50,000	18,749	30,000	40,000	170,596		340,498
Kansas State Agricultural College	29,511	50,000	6,330	30,000	40,000	130,962		286,803
University of Kentucky	8,644	42,750	13,601	30,000	40,000	197,342		332,337
Louisiana State University	14,556	29,829	4,385	30,000	40,000	132,964	3,401	255,135
University of Maine	5,915	50,000	3,233	30,000	40,000	59,218		188,366
University of Maryland	6,832	40,000	9,824	30,000	42,500	72,516	10,000	211,672
Massachusetts Agricultural College	7,300	33,333	2,225	30,000	40,000	31,235		144,093
Massachusetts Institute of Technology	3,650	16,667						20,317
Michigan State College	54,353	50,000		30,000	40,000	159,914		334,267
University of Minnesota	142,513	50,000	23,314	30,000	40,000	150,319		436,146
Mississippi Agricultural and Mechanical College	14,387	21,916		30,000	57,218	172,904		296,425
University of Missouri	29,931	46,876	31,678	30,000	40,000	200,922		379,407
Montana State College	41,812	50,000	5,150	30,000	40,000	49,597		216,559
University of Nebraska	56,774	50,000	12,455	30,000	40,000	103,621		292,850
University of Nevada	8,005	50,000		30,000	40,000	16,530	14,006	158,541
University of New Hampshire	4,800	50,000	660	30,000	40,000	27,160		152,620

TABLE 8.—*Income of land-grant colleges from Federal Government for 1928 classified by different funds*—Continued

Institution	Interest on land-grant fund of 1862 and others	Morrill and Nelson funds	Smith-Hughes funds	Hatch-Adams funds	Purnell funds	Smith-Lever funds	Other Federal funds	Total Federal funds
1	2	3	4	5	6	7	8	9
Rutgers University	$5,800	$50,000	$8,029	$30,000	$40,000	$80,774		$214,603
New Mexico College of Agriculture and Mechanic Arts	6,276	50,000		30,000	40,000	41,036		167,312
Cornell University	34,428	50,000	24,378	30,000	40,000	197,799		376,605
North Carolina State College	7,500	33,500	5,893	30,000	40,000	227,356		344,249
North Dakota Agricultural College	75,493	50,000	10,236	30,000	40,000	68,694		274,423
Ohio State University	45,021	50,000				228,776		323,797
Oklahoma Agricultural and Mechanical College	155,000	45,000		30,000	40,000	166,423		436,423
Oregon Agricultural College	10,992	50,000	5,156	30,000	40,000	51,225		187,373
Pennsylvania State College	26,020	50,000	31,348	30,000	40,000	336,987		514,355
University of Porto Rico		50,384						50,384
Rhode Island State College	2,500	50,000		30,000	40,000	10,871		133,371
Clemson Agricultural College	5,754	25,000		30,000	40,000	156,014		256,768
South Dakota State College	62,023	50,000	9,196	30,000	40,000	66,176		257,395
University of Tennessee	20,000	38,000	15,170	30,000	40,000	191,414		334,584
Agricultural and Mechanical College of Texas	10,450	37,500	5,011	30,000	40,000	349,445		472,406
Agricultural College of Utah	17,219	50,000	3,787	30,000	40,000	34,566		175,572
University of Vermont	8,130	50,000	5,363	30,000	40,000	35,473		168,966
Virginia Agricultural and Mechanical College	20,659	33,333	4,906	30,000	40,000	181,805		310,703
State College of Washington	142,650	50,000	3,630	30,000	40,000	73,868	$26,926	367,074
West Virginia University	5,034	40,000	14,836	30,000	40,000	125,015		254,885
University of Wisconsin	21,598	50,000		30,000	40,000	155,779		297,377
University of Wyoming	98,534	50,000		30,000	40,000	24,399		242,933
Total	1,599,229	2,299,924	382,547	1,365,000	1,838,918	5,888,816	107,487	13,481,921

The income of the colleges from the Federal Government in 1928 totaled $13,481,921, according to the table. Of this amount, $1,599,229, or 11.9 per cent, represents interest on land-grant endowments of 1862 and others; $2,299,924, or 17.1 per cent, consists of Morrill and Nelson funds; $382,547, or 2.8 per cent, of Smith-Hughes funds for teacher training; $1,365,000 or 10.2 per cent, of Hatch-Adams funds for agricultural experimentation; $1,838,918, or 13.6 per cent, of Purnell funds for agricultural research; $5,888,816, or 43.7 per cent, of Smith-Lever fund for agricultural and home economics extension; and $107,487, or 0.7 per cent, of other unclassified funds.

An analysis of these figures shows that while the colleges as a group receive liberal support from the Federal Government, the funds are available only for the development of specific activities. Agricultural and home economics extension receives 43.7 per cent of the total income from Federal sources, while the agricultural experiment stations through the use of two different Federal funds receive 23.6 per cent. For instruction in agriculture, mechanic arts, English, and scientific branches, 29 per cent is available, and for vocational teacher training 2.8 per cent. The latter, and the Smith-Lever Funds, however, are matched by appropriations from the States, which augment the funds available for this purpose to a material extent. It is evident, therefore, that the variation in the amount of income from Federal sources has a pronounced effect on the general financial program of the colleges, a point which will be further shown by detailed examination.

Interest on the original land-grant endowments of the Federal Government provides considerable revenue in a number of the institutions. In such cases the colleges have been enabled to use revenues derived from this source to upbuild their agricultural and mechanic arts branches, thereby releasing funds for other academic and educational needs. They, therefore, occupy a position of advantage over colleges with smaller incomes from land-grant endowments. As revealed in the table, the Oklahoma Agricultural and Mechanical College received the largest interest from its land-grant college endowment of any of the colleges in 1928, the amount being $155,000.

The income of the State College of Washington was $142,650, being the second largest. The University of Minnesota received $142,650 from this source, the University of Idaho $113,744, and the University of Wyoming $98,534. Interest from land-grant endowments of the remaining institutions ranged from $75,493 down to $2,500.

There are two colleges—the Alaska Agricultural College and the University of Porto Rico—which were not the recipients of land grants from the Federal Government, being organized as Territorial institutions.

As disclosed by the table, each of the States receives an equal amount, $50,000 annually, under the second Morrill Act and Nelson amendment. The entire sum is turned over to the State land-grant

institution except in Southern States, where separated negro land-grant colleges receive a part of the funds. The State of Massachusetts, where there are two institutions receiving Federal support, distributed two-thirds of the Morrill-Nelson funds in 1928 to the Massachusetts Agricultural College and one-third to the Massachusetts Institute of Technology.

Income under the Smith-Hughes Act, which provides for the vocational training of teachers, represents a small proportion of the revenues derived from Federal sources in most of the institutions. There were 15 land-grant colleges in 1928 that did not receive any Smith-Hughes funds. The University of Missouri derived an income of $31,678 from this source, the highest of any of the colleges. As the State appropriates a similar amount, the actual revenues were double this amount. A number of other institutions have been enabled to develop vocational teacher training to a considerable extent through Smith-Hughes funds, among them being the Pennsylvania State College with a Federal income for this purpose of $31,348, Purdue University with $26,734, Cornell University with $24,378, and University of Minnesota with $23,314. In the remaining cases the income from Smith-Hughes funds varied from $18,749 to $660.

For the operation of their agricultural experiment stations, the institutions in which such stations are located derived support from the Federal Government through the Hatch-Adams and the Purnell Acts. In no circumstances may these funds be used for instructional purposes or academic functions. The Hatch-Adams income amounted to $30,000 in 1928 for agricultural experimentation, each institution receiving this sum. Under the Purnell Act, the income of each college was $40,000 in 1928 to be utilized exclusively for research conducted by the stations. While the funds received from these sources augmented the total income of the institutions, it is obvious that they were available only for specific purposes.

Funds for the support of agricultural and home economics extension under the terms of the Smith-Lever Act make up a major share of the income from Federal sources in a number of the land-grant colleges. As amounts of the appropriations of the Federal Government are duplicated by State appropriations, the annual revenues for this activity, which is state-wide in scope, attain large proportions.

An examination of the tabulation shows that of a total of $472,406 in Federal funds secured by the Agricultural and Mechanical College of Texas in 1928, $349,445 consisted of Smith-Lever funds for agriculture and home economics extension. The Pennsylvania State College's income from this source amounted to $336,987 as compared with $514,355 for all Federal funds. Out of a total Federal income of $301,808 in the case of the Georgia State College of Agriculture, $237,782 comprised Smith-Lever funds. Similarly Smith-Lever revenues of the Ohio State University amounted to $228,492 as compared with total Federal revenues of $323,797, while the Federal income of the University of Illinois for agricultural and home economics extension was $228,496 out of a total Federal income of $396,997. The Smith-Lever funds of the North Carolina State

College were $227,356 as compared with total Federal funds amounting to $344,249. The Federal income of many of the other colleges represented varying amounts between $50,000 and $200,000. Among the colleges receiving the smallest revenues under the Smith-Lever Act were the University of Delaware with $20,742 and the University of Wyoming with $24,399.

The financing of the land-grant institutions by the different States which operate them is not uniform. Various methods are employed to secure revenues for their support, such as State endowments, State mill-tax levies, direct State appropriations both for general and specific purposes, State severance taxes, inspection taxes, and regulatory services. Revenues of the colleges derived from State sources, therefore, are heterogeneous. Whether an institution is to have stable income so divided as to maintain its various activities in balanced relationship depends not only on the amounts of revenues provided, but also on the method adopted by the State for its support.

The total State income of the 52 land-grant colleges for 1928 amounted to $71,123,755. An idea of the diversity of sources and means of support is obtainable from an enumeration of the amounts of the different State funds making up the total.

In Table 9 giving the State revenues of the institutions for 1928, it is shown that $192,701 was derived from interest on State endowment, $14,404,123 from mill-tax levies for operation and maintenance, $1,254,837 from mill-tax levies for permanent improvements, $32,976,601 consisted of appropriations for operation and maintenance, $8,888,108 of appropriations for permanent improvements, $304,634 for Smith-Hughes vocational education, $4,926,858 of appropriations for operation and maintenance of agricultural experiment stations, $300,681 of appropriations for permanent improvements of agricultural experiment stations, $178,583 of appropriations for operation and maintenance of engineering experiment stations, $484,537 of appropriations for special research, $5,759,485 of appropriations for agricultural and home economics extension, $873,013 of appropriations for other extension service, and $543,590 of funds secured for regulatory service, including food control, fertilizer, and sundry activities.

TABLE 9.—*Receipts of land-grant institutions from*

Institution	Interest on State endowment	Appropriation to match Smith-Hughes funds	Mill-tax levy for operation and maintenance	Appropriation for operation and maintenance	Mill-tax levy for permanent improvements
1	2	3	4	5	6
Alabama Polytechnic Institute		$7,321		$343,924	
Alaska Agricultural College and School of Mines				54,300	
University of Arizona			$674,433		
University of Arkansas			599,250		
University of California	$50,497	13,474		5,165,369	
Colorado Agricultural College		7,691	327,985		$130,395
Connecticut Agricultural College		5,522		243,529	
University of Delaware		5,350		167,400	
University of Florida		6,083		704,940	
Georgia State College of Agriculture		13,279		162,868	
University of Hawaii				247,225	
University of Idaho				710,124	
University of Illinois		18,074	2,625,000	1,052,007	
Purdue University		26,734		1,225,000	
Iowa State College		18,749		1,681,251	
Kansas State Agricultural College		9,978		989,260	
University of Kentucky		13,601	901,716	40,000	
Louisiana State University			[1] 640,966		
University of Maine		1,078		420,000	
University of Maryland		9,823		425,750	
Massachusetts Agricultural College	3,313			683,525	
Michigan State College		26,032	1,541,958		
University of Minnesota	75,328		426,122	3,391,500	594,506
Mississippi Agricultural and Mechanical College				256,194	
University of Missouri	39,940	19,553		1,505,410	
Montana State College		2,238		209,533	
University of Nebraska				1,750,000	
University of Nevada			184,775		41,061
University of New Hampshire		660	354,524		225,000
Rutgers University		8,029		757,845	
New Mexico College of Agriculture and Mechanic Arts	19,119	1,182		60,000	
Cornell University		20,497		1,013,466	
North Carolina State College				413,963	
North Dakota Agricultural College				292,760	
Ohio State University				3,134,947	
Oklahoma Agricultural and Mechanical College				640,000	
Oregon Agricultural College			1,213,337		
Pennsylvania State College		31,348		969,600	
University of Porto Rico	4,066		605,298		
Rhode Island State College				149,795	
Clemson Agricultural College			[2] 174,694	191,600	
South Dakota State College				278,067	
University of Tennessee		7,684	740,000	75,000	
Agricultural and Mechanical College of Texas		5,012		838,446	
Agricultural College of Utah			131,015	72,835	
University of Vermont		5,363		76,240	
Virginia Agricultural and Mechanical College		4,906		264,423	
State College of Washington			908,688		91,805
West Virginia University		11,982		915,000	
University of Wisconsin			2,107,139	1,403,505	
University of Wyoming	438	3,391	247,223		172,070
Total	192,701	304,634	14,404,123	32,976,601	1,254,837

[1] Severance tax.

[2] Fertilizer inspection tax.

States classified by sources and specific purposes for 1928

Appropriations for permanent improvements	Permanent improvements for agricultural experiment stations	Operation and maintenance of agricultural experiment stations	Operation and maintenance of engineering experiment stations	Appropriations for specific research	Smith-Lever agriculture and home economics extension	Other extension service	Regulatory service, control of food, and fertilizer	Total State funds
7	8	9	10	11	12	13	14	15
	$28,725	$65,682			$226,182			$671,834
	36,000							90,300
								674,433
		15,000			75,000			689,250
$1,786,544	76,271	572,793		$22,500	386,190	$50,000		8,123,641
		103,155			50,000			619,226
229,324		37,060			84,865			600,240
225,000		18,500			10,742	6,832		433,824
116,949	37,300	281,805		2,500	104,848	44,212		1,298,637
					224,583			400,730
270,500		12,608				12,516		542,249
		32,604		9,354	55,756			807,838
1,322,113	9,784	550,309	$92,723	52,103	111,299			5,833,412
162,281		226,000		30,000	152,087	53,470	$157,609	2,033,181
421,500		235,000	57,000	75,000	238,000	35,000		2,761,500
221,000	2,700	85,990	3,250	16,000	101,842	28,000	1,000	1,459,020
75,000	10,375	126,517			142,241			1,309,450
93,750		40,035		25,000	93,437	900	32,921	927,009
59,318		35,000	3,050		49,218			567,664
		77,400			106,288	37,100	37,260	693,621
48,317	2,405	96,066				85,214	47,717	966,557
228,000					335,000			2,130,990
2,000				88,000	135,775			4,713,231
	49,058	102,718			162,904	6,761	17,000	594,635
30,138		28,678	18,377		100,464	17,636		1,760,196
		117,589		631	85,920			415,911
284,757					50,000		48,440	2,133,197
		2,260			35,803		31,176	295,075
		5,500			36,000	35,500		657,184
261,817	15,000	297,068			101,960	15,000		1,456,719
		7,500				53,565	7,000	148,366
41,639		492,026		49,643	420,762			2,038,033
349,739		60,000			173,043			996,745
6,626	8,250	143,347			56,000			506,983
737,070					298,474			4,170,491
170,000		40,000			130,000			980,000
		79,500		53,500	127,850	2,500		1,476,687
51,980		124,238			305,781			1,482,947
4,413								613,777
						871	1,300	151,966
250,000		82,177			110,863		108,960	918,294
		41,362			84,033	5,298		408,760
500,000		5,000						1,327,684
	15,000	332,694	2,000		251,326		51,700	1,496,178
32,500		65,500			42,500			344,350
		25,000			25,200	8,000		139,803
194,800	9,810	77,278	2,186		191,333			744,736
6,633		16,935		4,783	63,566		1,507	1,093,917
241,250		93,500			85,000	73,000		1,419,732
463,150		63,240		55,523	137,351	301,638		4,531,546
		48,884						472,006
8,888,108	300,681	4,962,858	178,586	484,537	5,759,485	873,013	543,590	71,123,755

There is no more significant factor in the financing of land-grant colleges than the plan of making lump-sum appropriations by the State for general operation and maintenance and for permanent improvements. With the State income in such form, governing and administrative officers intimately acquainted with the needs of the institution are free to distribute the funds to the best advantage in accomplishing its educational objectives. The table shows that $47,573,425 of the total income of 1928 was made up of funds of this character. Lump-sum revenues for permanent improvements from mill-tax levies and direct State appropriations amounted to $10,142,945. Of the total State funds of $71,123,755 in 1928, there were $57,716,370 provided in lump sums, or approximately 81 per cent. The remainder of the State income consisted of appropriations for specific purposes. As $6,063,119 was Smith-Hughes and Smith-Lever appropriations required under Federal law, it is evident that most of the States have adopted the policy of providing funds for the support of their land-grant colleges in the form of lump sums. There are many instances, however, where the State governments make appropriations for specific purposes, a plan that does not usually serve the best interests of the institutions. The methods of the States in financing the colleges is taken up in detail by another portion of this report.

In only seven cases have State endowments been created, the interest from which is to be utilized for the support of the colleges. Three of them are of considerable size. The University of Minnesota received an income of $75,328 in 1928 from its State endowment, the University of California $50,497, the University of Missouri $39,940, and the New Mexico College of Agriculture and Mechanic Arts $19,119. Revenues derived from this source by the other three institutions were insignificant in amount. At one time the theory was advanced of supporting State universities and land-grant colleges by State endowments, but the institutions have developed so rapidly and their financial needs have so greatly increased that the proposal receives little consideration to-day.

A mill-tax levy on general property valuation in 1928 was the principal source of the State income of 18 of the land-grant institutions. In one instance, the mill tax was supplemented by a severance tax and in another by a fertilizer-inspection tax. Six of the colleges not only received support for operation and maintenance costs from a mill tax, but the mill tax also provided funds for permanent improvements. As a method of financing public higher education, the mill tax has advantages. It provides a fairly stable income without the necessity of periodical State appropriations. For an institution with expanding activities and increasing costs of operation, the income from a mill tax frequently proves insufficient to

provide for its proper growth. No State system of financing with a mill tax as a basis can be expected to meet the needs of the modern land-grant college unless supplemented by regular State appropriations when the occasion demands.

As disclosed in the table, the institution having the largest income from a mill-tax levy on general property valuation for 1928 was the University of Illinois with $2,625,000. The revenues from this source were far too small to defray its operating expenses and additional funds had to be supplied by the State. The University of Wisconsin received $2,107,139 in State mill-tax revenues, which were also supplemented by large State appropriations for operation and maintenance. In 1928 the income of the Michigan State College from its mill tax amounted to $1,541,958, which was all that was furnished by the State to cover operation and maintenance costs, although State appropriations were made for permanent improvements, Smith-Hughes funds for vocational teacher training and Smith-Lever funds for agricultural and home-economics extension. The Oregon Agricultural College had a mill-tax income of $1,213,337, which was also the only support for operation and maintenance, but additional income was provided by the State for its agricultural experiment station, special research, Smith-Lever, and other extension. In the cases of the State College of Washington with mill-tax revenues of $908,688 and of the University of Kentucky with $901,716, additional State appropriations were necessary for the maintenance of a number of different educational and research activities. Only two of the land-grant colleges receive their entire State support from the mill tax, the institutions being the University of Arizona with an income from this source of $674,433 and the University of Porto Rico with $605,298. Of the six institutions that depend on mill-tax income for permanent improvements the University of Minnesota received the highest revenues in 1928, the amount being $594,506 while the University of New Hampshire received $225,000, the next highest sum. In the case of the University of Minnesota, a 10-year building program was adopted and the millage was merely the vehicle of carrying out the program. The other four colleges realized varying amounts from $41,061 to $172,070. Forty institutions receive direct State appropriations for operation and maintenance. In 7 cases the appropriations were supplementary to mill-tax income, while in the other 33 the appropriations covered the whole item of operation and maintenance with the exception of State support for specific activities. The University of California received $5,165,369 in 1928, the largest direct appropriation for operation and maintenance of any of the institutions. The second highest income was that

of the University of Minnesota, the amount being $3,931,500. Ohio State University received $3,134,947, being the third on the list. State appropriations for operation and maintenance of the University of Nebraska were $1,750,000, of the Iowa State College $1,681,000, of the University of Missouri $1,505,410, and of the University of Wisconsin $1,403,505, the latter being in addition to its mill-tax income. The income of the other institutions ranged from $1,225,000 for Purdue University to $54,300 for the Alaska Agricultural College.

It has already been pointed out that the policy of the State governments is to provide separate appropriations for permanent improvements of the physical plants with a few exceptions where mill-tax levies supply the funds. Forty land-grant colleges made permanent improvements through State appropriations in 1928, according to the figures presented in the table.

Among the institutions receiving large appropriations for this purpose were the University of California with $1,786,544, University of Illinois with $1,322,113, Ohio State University with $737,070, University of Tennessee with $500,000, University of Wisconsin with $463,150, Iowa State College with $421,500, and North Carolina State College with $349,739. The smallest State appropriations for permanent improvements were $2,000 for the University of Minnesota, and $6,633 for the State College of Washington, but in each instance the institutions received additional funds from mill-tax sources.

It is the tendency of some State governments to isolate certain branches of the institutions and make separate appropriations for their support. Detailed examination shows that the practice is widespread. There were 42 States in 1928 where funds for the operation and maintenance of the agricultural experiment stations were segregated from the general appropriations for the maintenance of the institutions. Thirteen States provided separate funds for the engineering experiment stations while the same situation existed in 14 cases with regard to specific research conducted by the colleges. Direct appropriations were made by 21 States also for extension service other than Smith-Lever extension and by 13 States for special regulatory service including control of foods and fertilizers. The amounts of such State appropriations for specific purposes varied. For the operation and maintenance of agricultural experiment stations the sums ranged from $572,793 to $2,260 in 1928 in the different institutions, for specific research from $75,000 to $631, for special extension service from $301,638 to $871 and for regulatory service from $157,609 to $1,000. In general, the practice of isolating particular branches or functional units and furnishing individual support to them tends to destroy unity in the general financial program of the institutional establishment. It likewise has the effect of removing from the administrative authority control over the balanced

development of the educational program, unless the separate appropriations are requested by the institution itself.

In the accompanying table the receipts of the colleges from institutional sources in 1928 have been segregated into five items—interest on college endowment, tuition and student fees, extension-service student fees, receipts from athletics, and other institutional funds. With the exception of extension service, student fees and athletic receipts, revenues from all of these items are available in most cases for general purposes. There is no restriction on their expenditure. Obviously the temptation to secure larger funds from these sources exists. As will be shown later, the principle increases are made in tuition and student fees. According to the compilation, the receipts of the 52 land-grant colleges from institutional sources totaled $26,067,624. Of this amount, $4,254,590, or 16.4 per cent, was derived from interest on college endowment; $14,401,383, or 55.3 per cent, from tuition and student fees; $987,096, or 3.6 per cent, from extension service student fees; $2,240,179, or 8.6 per cent, from athletic receipts; and $4,184,376, or 16.1 per cent, from other institutional funds. A more detailed analysis of receipts from the different sources is made in Table 10.

TABLE 10.—*Receipts of land-grant institutions from various institutional sources, 1928*

Institution	Interest on college endowment	Tuition and student fees	Student fees for extension service	Receipts from athletics handled through treasurer	Other institutional funds	Total institutional funds
1	2	3	4	5	6	7
Alabama Polytechnic Institute		$126,879	$12,010	$58,785	$112,642	$310,316
Alaska Agricultural College and School of Mines		967				967
University of Arizona		96,148	7,461	46,655	73,739	223,003
University of Arkansas		76,366	21,049		8,603	106,018
University of California	$433,368	1,280,627	311,109		654,220	2,679,324
Colorado Agricultural College		43,046		63,270	255	106,571
Connecticut Agricultural College	2,514	91,615		18,391	10,541	123,061
University of Delaware	20,816	74,404	540	4,658	11,898	112,316
University of Florida	2,200	110,131	20,733	133,786		266,850
Georgia State College of Agriculture		64,017			16,772	80,789
University of Hawaii	417	31,186	7,710			39,313
University of Idaho		46,788			16,673	63,461
University of Illinois		850,748			73,141	923,889
Purdue University		312,027	7,114	171,467		490,608
Iowa State College	4,353	387,219			50,000	441,572
Kansas State Agricultural College		252,536	10,558	76,227	11,929	351,250
University of Kentucky	1,700	149,564	22,563		18,681	192,508
Louisiana State University		86,999	13,222	82,627	14,301	197,149
University of Maine	28,500	189,414			6,730	224,644
University of Maryland		577,276			465,903	1,043,179
Massachusetts Agricultural College		57,466	799	21,510		79,775
Massachusetts Institute of Technology	1,658,686	897,262				2,555,948
Michigan State College	1,157	281,140			2,453	284,750
University of Minnesota	737,444	1,045,349		386,706	423,670	2,593,169
Mississippi Agricultural and Mechanical College		70,724		33,718	5,324	109,766

TABLE 10.—*Receipts of land-grant institutions from various institutional sources, 1928*—Continued

Institution	Interest on college endowment	Tuition and student fees	Student fees for extension service	Receipts from athletics handled through treasurer	Other institutional funds	Total institutional funds
1	2	3	4	5	6	7
University of Missouri	$26,472	$398,387	$48,694	$160,234	$7,750	$641,537
Montana State College		38,299		11,863		50,162
University of Nebraska		448,245	30,829		344	479,418
University of Nevada	8,114	45,542		34,474	439	88,569
University of New Hampshire	32,834	183,903		22,803	99,746	339,286
Rutgers University	181,925	558,841	84,315		39,472	864,553
New Mexico College of Agriculture and Mechanic Arts	1,853	7,577		2,041	441	11,912
Cornell University	1,055,552	1,438,304			513,945	3,007,801
North Carolina State College		140,142		58,724	35,494	234,360
North Dakota Agricultural College	1,130	45,505				46,635
Ohio State University	20,946	717,079		221,214	728,846	1,688,085
Oklahoma Agricultural and Mechanical College		48,134		56,510	137,986	242,630
Oregon Agricultural College		268,946			11,000	279,946
Pennsylvania State College		620,603	168,641		83,817	873,061
University of Porto Rico		41,249				41,249
Rhode Island State College		13,274			39,725	52,999
Clemson Agricultural College	3,512	25,233		45,935	19,967	94,647
South Dakota State College		68,184				68,184
University of Tennessee	1,238	237,015	9,283		39,441	286,977
Agricultural and Mechanical College of Texas		85,401		96,214	267,411	449,026
Agricultural College of Utah		56,888	3,042			59,930
University of Vermont	29,708	352,172		48,424	27,352	457,656
Virginia Agricultural and Mechanical College		80,413			13,229	93,642
State College of Washington		126,732	7,818		53,515	188,065
West Virginia University		253,405		19,243	62,773	335,421
University of Wisconsin		843,326	198,251	332,779	17,672	1,392,028
University of Wyoming	151	58,686	1,355	31,921	7,536	99,649
Total	4,254,590	14,401,383	987,096	2,240,179	4,184,376	26,067,624

With a few exceptions, revenues from interest on college endowments constitute minor sources of income for land-grant institutions. Twenty-nine of the colleges have no endowments. Of the 23 possessing endowments, the bulk of the income for 1928 was centered in 4 institutions—the Massachusetts Institute of Technology, Cornell University, University of Minnesota, and University of California. The Massachusetts Institute of Technology and Cornell University are semiprivate schools, which accounts for their large endowments. That two State universities, such as the University of Minnesota and the University of California, should possess college endowments of considerable size is a tribute to the health of their educational standing in their States. While Rutgers University had an income of $181,925 from this source, receipts from interest on college endowment of the other colleges were generally small, ranging from $32,834 for the University of New Hampshire down to $151 for the University of Wyoming.

As already intimated, tuition and student fees represent a vital resource for expansion of the income of the land-grant colleges. In another part of the report both the gain in receipts and increase in rate of fees will be presented in full.

That revenues from this source are relied upon to a marked extent to provide support is indicated by the table showing that in 1928 there were no institutions which did not enjoy an income from tuition and student fees. In a number of cases the figures were large and in the majority of colleges they consisted of substantial sums.

Three of the land-grant colleges realized between $1,000,000 and $1,500,000 from tuition and student fees, three between $800,000 and $900,000, one between $700,000 and $800,000, two between $500,000 and $600,000, and one between $400,000 and $500,000.

The large volume of receipts from student fees is partly due to the size of the student enrollment. It is evident, however, that States and institutions alike are depending for support to a substantial amount upon charges made against students, although the schools were originally established as free public institutions of higher education. The burden is thus being considerably shifted to the students.

An analysis of the receipts of the remaining colleges from this source discloses that 3 had revenues from $400,000 to $300,000, 1 from $350,000 to $300,000, 4 from $300,000 to $250,000, 1 from $250,000 to $200,000, 2 from $200,000 to $150,000, 4 from $150,000 to $100,000, 12 from $100,000 to $50,000, 10 from $50,000 to $25,000, and 3 less than $10,000.

Twenty-one land-grant colleges secured further revenues from student fees through charges for extension courses of instruction in addition to the income from tuition and student fees for regular academic work. While the total for this item was not large in the aggregate, the receipts of a number of individual institutions attained sizable sums. The University of California had receipts of $311,109 from this source in 1928. Revenues of the University of Wisconsin amounted to $198,251 and of the Pennsylvania State College $168,641, while in the other institutions the income varied from $84,315 to $540. Receipts for fees of this type usually revert to the extension service to be used in meeting its cost of operation.

The remaining items of income from institutional sources include athletic receipts, when these are handled through the institution treasurer, and other institutional funds. The entire question of income from athletics as well as capital investments in athletic plants is appraised in another section of the report. Receipts in 1928 from other institutional funds, as already shown, totaled $4,184,376 for all the institutions. In a number of cases the income from such funds constituted sums of considerable proportions.

Receipts of the Ohio State University amounted to $728,846, University of California $654,220, Cornell University $423,670, University of Maryland $465,903, University of Minnesota $423,670, Agricultural and Mechanical College of Texas, $267,411, Oklahoma Agricultural and Mechanical College $137,986, and

Alabama Polytechnic Institute $112,642. The other institutions received less than $100,000.

Items from other institutional funds are made up principally of interest on bank deposits and trust funds, real-estate rentals, student activity funds, memorial funds, licenses, city or township appropriations, and receipts of hospitals and infirmaries.

The amount of support received by the land-grant colleges from private gifts varies from year to year. It is therefore an unstable source of income. Where gifts or donations are made, they are ordinarily for specific activities or purposes and consequently are not available to defray general operating costs. An examination into this phase of the question shows that in 1928 the use of the private gifts received by the institutions was limited to nine different specific purposes.

The increasing number of private gifts to the colleges is an undoubted recognition of the growing public confidence in the land-grant type of education.

For the year 1928 the total receipts of 36 institutions from this source amounted to $7,392,862, of which $3,090,822 comprised gifts for endowments, $3,030,367 for permanent improvements and capital outlays, $679,100 for operation and maintenance of instruction and administration, $60,665 for operation and maintenance of agricultural experiment stations, $3,484 for permanent improvements of agricultural experiment stations, $7,993 for operation and maintenance of engineering experiment stations, $30,962 for agricultural and home economics extension, $12,421 for other extension, and $477,048 for research.

Table 11 shows the amounts and distribution of private gifts by institutions and by specific purposes for that year.

TABLE 11.—*Receipts of land-grant institutions from private gifts classified by specific purposes for 1928*

Institution	Gifts for endowment	Gifts for permanent improvements and capital outlay	Gifts for operation and maintenance of instruction and administration	Gifts for operation and maintenance of agricultural experiment stations	Gifts for permanent and capital improvement in agricultural experiment stations	Gifts for operation and maintenance of engineering experiment stations	Gifts for agricultural and home economics extension	Gifts for other extension	Gifts for research	Total gifts
1	2	3	4	5	6	7	8	9	10	11
Alabama Polytechnic Institute				$6,050			$5,205			$11,255
University of Arizona	$334									334
University of Arkansas			$380	700						1,080
University of California	1,324,568	$312,327	111,961	6,660					$237,369	1,992,885
Connecticut Agricultural College						$2,393				2,393
University of Delaware		46,812	4,000				694			51,506
Georgia State College of Agriculture	23,504						19,017			42,521
University of Hawaii	700								305	1,005
University of Illinois	51,506								81,544	133,050
Purdue University		19,253						$850		20,103
Kansas State Agricultural College				4,191						4,191
University of Kentucky				5,000			1,279			6,279
Louisiana State University		1,326						4,338		5,664
University of Maine		101,146								101,146
University of Maryland	5,875	3,068		4,125						13,068
Massachusetts Institute of Technology	956,191		154,416							1,110,607
University of Minnesota	197,671									197,671
University of Missouri	11,902	35,222	8,121							55,245
Montana State College	5,000									5,000
University of Nevada	4,258	3,000	21,250							28,508
University of New Hampshire									1,771	1,771
Rutgers University	147,165	412,415	8,004						30,920	598,504
Cornell University		1,766,321	222,152						115,872	2,104,345
North Carolina State College				3,258						3,258
North Dakota Agricultural College				9,000						9,000

TABLE 11.—*Receipts of land-grant institutions from private gifts classified by specific purposes for 1928*—Continued

Institution	Gifts for endowment	Gifts for permanent improvements and capital outlay	Gifts for operation and maintenance of instruction and administration	Gifts for operation and maintenance of agricultural experiment stations	Gifts for permanent and capital improvement in agricultural experiment stations	Gifts for operation and maintenance of engineering experiment stations	Gifts for agricultural and home economics extension	Gifts for other extension	Gifts for research	Total gifts
1	2	3	4	5	6	7	8	9	10	11
Ohio State University			$22,027							$22,027
Oklahoma Agricultural and Mechanical College	$2,560									2,560
Oregon Agricultural College									$6,267	6,267
Pennsylvania State College		$323,857	19,928	$1,381			$500			345,666
University of Porto Rico									3,000	3,000
University of Tennessee		5,620			$3,484	$750	4,267	$100		14,221
Agricultural College of Utah	300		4,043	500						4,843
University of Vermont	358,988		3,932							362,920
State College of Washington								7,133		7,133
University of Wisconsin			98,886	19,800		4,850				123,536
University of Wyoming	300									300
Total	3,090,822	3,030,367	679,100	60,665	3,484	7,993	30,962	12,421	477,048	7,392,862

There were 16 land-grant colleges that received private gifts for endowment in 1928, the total being $3,090,822. Approximately 73 per cent of the entire amount was concentrated in two institutions, the University of California receiving $1,324,568 and the Massachusetts Institute of Technology $956,191. The University of Vermont with $358,988, University of Minnesota with $197,671, and Rutgers University with $147,165, however, had fairly substantial additions to their endowments. Private gifts to the other 11 colleges for endowment purposes ranged from $51,506 to $300. A total of $3,030,367 for permanent improvements and capital outlays was derived from private gifts by 12 of the colleges in 1928. Cornell University was the recipient of gifts amounting to $1,766,321 for this purpose or more than half the total. The institution receiving the next highest amount in gifts for permanent improvements was Rutgers University with $412,415, while Pennsylvania State College with $323,857 and the University of California with $312,327 followed on the list. In the case of the remaining colleges, such gifts varied from $101,146 for the University of Maine to $1,326 for the Louisiana State University.

Income for operation and maintenance of instruction and administration was enhanced by private gifts in 13 of the colleges. The total for 1928 was $679,100. As in the case of other private gifts, the greater proportion was divided among a few institutions. Private gifts for operation and maintenance of the Massachusetts Institute of Technology amounted to $154,416, of Cornell University $222,152, of the University of California $111,961, and of the University of Wisconsin $98,886. The other colleges received gifts for this purpose ranging from $22,027 to $380. For the specific purpose of the payment of operating costs of agricultural experiment stations, private gifts were also made to 11 institutions in 1928, the amounts being generally small. None exceeded $19,800, which was received by the University of Wisconsin, while the lowest amount was $500 for the agricultural experiment station of the Agricultural College of Utah. Only one gift was made for permanent improvements of agricultural experiment stations, $3,484 being donated to the University of Tennessee. Similarly there were only three private gifts during the year for operation and maintenance of engineering experiment stations. Of the total of $7,993, the University of Wisconsin received $4,850, Connecticut Agricultural College $2,393, and University of Tennessee $750.

A number of other specific activities of the colleges received support through private gifts. For agricultural and home economics a total of $30,862 was contributed to six land-grant institutions. The highest sum was received by the Georgia State Agricultural College, the amount being $19,017. A similar

gift of $5,205 was made to the Alabama Polytechnic Institute and one of $4,267 to the University of Tennessee, the other two colleges receiving $694 and $500. Private gifts for other extension totaled $12,421 to four institutions of which $7,133, the highest amount, was made to the State College of Washington. For the conduct of special research, eight colleges received gifts. The total for all reached $477,048. Gifts for this purpose to the University of California amounted to $237,369, to Cornell University $115,872 and to the University of Illinois $81,544. Sums ranging from $30,920 to $305 comprised the private donations for research in the other six land-grant colleges.

Included in the receipts of practically all the land-grant colleges are earnings from their educational functions. The income derived from these sources does not in reality constitute earnings in the sense of profits of a private business concern, but are funds reclaimed from larger expenditures made to conduct the educational activities. Such revenues are obtained by the operations of the engineering experiment stations, agricultural experiment stations, academic and instructional departments. Service enterprises such as residence and dining halls are conducted solely for the benefit of the students; the gross revenues derived from them constitute revolving funds practically all of which is expended directly for their operation. The total sum derived from earnings by the colleges was $17,218,257, of which $19,269 was derived from engineering experiment stations, $3,044,991 from agricultural experiment stations, $7,555,113 from departments, and $6,598,884 from gross receipts of residence and dining halls. In Table 12 are given the amounts from each of the sources by institutions.

TABLE 12.—*Receipts of land-grant institutions from earnings in 1928*

Institution	Engineering experiment station	Agricultural experiment station	Departments	Gross receipts from residence and dining halls	Total
1	2	3	4	5	6
Alabama Polytechnic Institute		$9,402	$119,512	$31,649	$160,563
Alaska Agricultural College and School of Mines				3,721	3,721
University of Arizona	$362	27,111	8,816	105,965	142,254
University of Arkansas		26,845		6,152	32,997
University of California		97,213	227,944	34,369	359,526
Colorado Agricultural College		39,172	73,760		112,932
Connecticut Agricultural College		18,072	248,291	149,042	415,405
University of Delaware		16,443		111,,496	127,939
University of Florida		16,122	73,958	100,976	191,056
Georgia State College of Agriculture			82,007	49,383	131,390
University of Hawaii		23,930	20,200	24,055	68,185
University of Idaho		10,677	78,980	112,008	201,665
University of Illinois	2,205	72,169	324,679	145,495	544,548
Purdue University	10,558	107,213	264,329	18,482	400,582
Iowa State College	1,883	40,958	396,207	105,621	544,669
Kansas State Agricultural College	2,619	69,905	233,104	88,270	393,898
University of Kentucky		180,989		76,754	257,743
Louisiana State University		16,384	55,253		71,637
University of Maine		30,027	45,208	118,337	193,572
University of Maryland		35,225	183,205	136,327	354,757

TABLE 12.—*Receipts of land-grant institutions from earnings in 1928*—Contd.

Institution	Engineering experiment station	Agricultural experiment station	Departments	Gross receipts from residence and dining halls	Total
1	2	3	4	5	6
Massachusetts Agricultural College		$23,515	$85,334	$149,961	$258,810
Massachusetts Institute of Technology			318,526		318,526
Michigan State College		35,905	385,041	25,358	446,304
University of Minnesota				387,369	387,369
Mississippi Agricultural and Mechanical College		20,995	303,526	217,592	542,113
University of Missouri	$344	112,463	223,412	68,780	404,999
Montana State College		36,810	32,939	16,447	86,196
University of Nebraska		66,446	547,214	181,718	795,378
University of Nevada		5,799	21,276	54,897	81,972
University of New Hampshire		30,738	78,745	193,642	303,125
Rutgers University		87,961		454,926	542,887
New Mexico College of Agriculture and Mechanic Arts		12,607	30,157	15,669	58,433
Cornell University		731,244		698,055	1,429,299
North Carolina State College		8,518	59,326	250,281	318,125
North Dakota Agricultural College		90,756	4,922	25,300	120,978
Ohio State University			242,878	126,648	369,526
Oklahoma Agricultural and Mechanical College		21,097	134,703	49,673	205,473
Oregon Agricultural College	680	63,906		159,837	224,423
Pennsylvania State College		18,237	498,306	141,201	657,744
University of Porto Rico			23,265	15,927	39,192
Rhode Island State College		5,621		111,297	116,918
Clemson Agricultural College		59,445		218,457	277,902
South Dakota State College		6,706	71,047	18,339	96,092
University of Tennessee		16,650	163,320	101,119	281,089
Agricultural and Mechanical College of Texas		124,635	622,886	462,221	1,209,742
Agricultural College of Utah		29,320	12,856		42,176
University of Vermont		35,696	37,575	74,689	147,960
Virginia Agricultural and Mechanical College		12,852	411,179	255,638	679,669
State College of Washington	210	65,896	50,549	59,193	175,848
West Virginia University		59,121	44,863	70,527	174,511
University of Wisconsin		412,395	660,440	516,023	1,588,858
University of Wyoming	408	11,800	55,375	59,998	127,581
Total	19,269	3,044,991	7,555,113	6,598,884	17,218,257

Revenues from earnings of engineering experiment stations were not large. At only nine institutions were receipts from such source recorded. The Purdue University engineering station had revenues of $10,558, or more than one-half of the total. A different situation, however, is found in the case of the agricultural experiment stations. Every land-grant college with six exceptions had receipts from them, the sums running to sizable figures in many instances. According to the data furnished, the earnings of the Cornell University agricultural experiment station were $731,244, of University of Wisconsin $412,395, of University of Kentucky $180,989, of Agricultural and Mechanical College of Texas $124,635, of University of Missouri $112,463, and of Purdue University $107,213.

At 2 colleges they were between $100,000 and $90,000, at 1 between $90,000 and $80,000, at 1 between $80,000 and $70,000, at 4 between $70,000 and $60,000,

at 2 between $60,000 and $50,000, at 1 between $50,000 and $40,000, at 7 between $40,000 and $30,000, at 6 between $30,000 and $20,000, and at 10 between $20,000 and $10,000. The receipts of 5 agricultural experiment stations were less than $10,000.

The receipts from departmental earnings of 2 institutions consisted of sums varying from $600,000 to $700,000, of 1 from $500,000 to $600,000, of 2 from $400,000 to $500,000, of 3 from $300,000 to $400,000, and of 6 from $200,000 to $300,000. Of the remaining colleges there was 1 with departmental earnings ranging from $175,000 to $200,000, 1 from $150,000 to $175,000, 1 from $125,000 to $150,000, 1 from $100,000 to $125,000, 4 from $75,000 to $100,000, 7 from $50,000 to $75,000, 5 from $25,000 to $50,000, and 6 less than $25,000.

Gross receipts of the institutions from residence and dining halls totaled $6,598,884. The greater part of the revenues is utilized to defray operating expenses of these services, except where the income from residence halls at some of the colleges is used for general institutional expense, a practice that is given detailed attention later in the report. There were four colleges that failed to give their gross receipts, one of which operates neither residence nor dining halls. In the institutions furnishing figures, the income varied from $698,055 at Cornell University, the institution having the largest gross revenues, to $3,721 at the Alaska Agricultural College having the lowest. The receipts are generally large in most of the colleges, indicating that the finances of residence and dining halls require expert business management.

Items of income not classified under the regular sources already outlined are included under miscellaneous receipts. The grand total for all institutions was $6,897,689. Approximately 52 per cent of the total was represented by county funds for agricultural and home economics extension. Further details appear in Table 13.

TABLE 13.—*Miscellaneous receipts of land-grant institutions for 1928*

Institution	For instruction, administration, and permanent improvements	For current expenses of agricultural experiment station	For specific research	From county funds for agricultural and home economics extension	From other funds for agricultural and home economics extension	For general extension	From regulatory services, etc.	Total miscellaneous receipts
1	2	3	4	5	6	7	8	9
Alabama Polytechnic Institute				$63,124		$35,076		$98,200
Alaska Agricultural College and School of Mines	$1,925							1,925
University of Arizona				23,375	$458			23,833
University of Arkansas				190,722	3,638			194,360
University of California	138,447	$11,238	$7,841					157,526
Colorado Agricultural College				53,791				53,791
University of Delaware						87		87
University of Florida				136,748				136,748
Georgia State College of Agriculture	7,100	3,000		4,380	2,886	8,289		25,655
University of Hawaii			20,000					20,000
University of Illinois			10,245	107,197				117,442
Purdue University	[1] 231,959		239,309	104,910	59,876	234		636,279
Iowa State College			52,233					52,233
Kansas State Agricultural College						952		952
University of Kentucky				117,753				117,753
Louisiana State University	1,277			135,100		1,500		137,877
University of Maryland						18,673	$9,690	28,363
Massachusetts Agricultural College							59,335	59,335
University of Minnesota							[2] 1,397,388	1,397,388
Mississippi Agricultural and Mechanical College	13,918		5,400	145,117				164,435
University of Missouri	265,192		4,919	142,807	11,039	2,814		426,771
Montana State College				9,533		2,509		12,042
University of Nevada				31,869				31,869
University of New Hampshire				3,775				3,775
Rutgers University				153,606	3,530			157,136
New Mexico College of Agriculture and Mechanic Arts				33,253		2,500		35,753
Cornell University	48,624			668,013	36,750			753,387
North Carolina State College	10,224	2,498		180,596	7,214			200,532
North Dakota Agricultural College				33,842	1,224			35,066
Ohio State University				230,137				230,137

[1] Bond issue, trust funds.

[2] Service enterprises.

TABLE 13.—*Miscellaneous receipts of land-grant institutions for 1928*—Continued

Institution	For instruction, administration, and permanent improvements	For current expenses of agricultural experiment station	For specific research	From county funds for agricultural and home economics extension	From other funds for agricultural and home economics extension	For general extension	From regulatory services, etc.	Total miscellaneous receipts
1	2	3	4	5	6	7	8	9
Oklahoma Agricultural and Mechanical College				$177,072				$177,072
Oregon Agricultural College	$3,578			86,479		$7,859	$3,451	101,367
Pennsylvania State College					$1,500			1,500
Rhode Island State College							4,257	4,257
Clemson Agricultural College							38,874	38,874
South Dakota State College	77,648	$11,346		85,022		3,594		177,610
University of Tennessee				[3] 167,147				167,147
Agricultural and Mechanical College of Texas			$1,850	224,890	6,076	6,432	192,893	432,141
Agricultural College of Utah	18,200			3,725		705		22,630
University of Vermont						1,606	18,891	20,497
Virginia Agricultural and Mechanical College	34,310			92,306	15,232	12,912		154,760
State College of Washington				91,052				91,052
West Virginia University				110,348		6,884		117,232
University of Wisconsin	11,177					43,382		54,559
University of Wyoming		22,544				3,797		26,341
Total	863,579	50,626	341,788	3,607,689	149,423	159,805	1,724,779	6,897,689

[3] Partially Federal funds.

Chapter III.—Distribution of Expenditures

Great difficulty is encountered in analyzing the expenditures of the land-grant institutions because of the lack of uniformity in their classification. This is due to an uncertainty as to whether expenditures reported under a given heading in one institution represent similar expenditures in another institution. On account of the lack of accuracy of data submitted in this respect, it has been decided to base the study of expenditures upon reports made by the land-grant colleges to the Federal Government for the fiscal year 1928. The classifications contained in the reports are quite uniform throughout and represent the amounts officially given by the institutions as to their actual expenditures for each of the several items.

The grand total expenditures of the 52 land-grant institutions for 1928 amounted to $139,632,601. Of this sum, $112,346,451 was expended for operation and maintenance, $23,070,067 for capital outlays, and $4,116,083 for trust funds. The figures include expenditures for administration, resident instruction, library, extension, experiment station, research, physical plant, operation and maintenance, physical plant extension, trust funds, residence and dining halls, athletics, hospitals, dispensaries, revolving funds, auxiliary enterprises, extracurricular activities, and for all other purposes.

Expenditures for capital outlay are variable. In some years the colleges receive large funds for physical plant expansion and equipment while in other years little or no funds are available. In consequence there is a difference in expenditures for capital outlay from year to year. There are also a great many noneducational expenditures, such as residence and dining halls, athletics, hospitals, dispensaries, auxiliary services, and similar enterprises, which not only have no relationship to the academic functions, but also vary to a considerable degree in amounts annually dependent upon their receipts. Most of these undertakings are operated on a rotary fund basis.

Any sound appraisal of expenditures, therefore, must take into consideration the direct expenditures for the accomplishment of the educational work in contradistinction to other services. For this reason, in the ensuing analysis it is proposed to exclude expenditures noneducational in character and to consider only expenditures for educational purposes or purposes contributing directly to the

educational work of the institutions. Much importance attaches to such an appraisal. Successful financial operation of the colleges involves a balanced adjustment of expenditures for administration and physical plant operation with expenditures for resident instruction, general library, extension, experiment station, and research. The distribution of the expenditures between these items, allowing for differences in local conditions, indicates to a degree whether the resources are being effectively expended to carry out the academic program and to attain the educational objectives of the institutions. Such a comparison of expenditures also reveals whether unduly large proportions are expended to cover overhead costs of administration and of physical plant operation. Table 14 shows the expenditures exclusively for educational and contributory purposes with proportions for the various items.

TABLE 14.—*Expenditures of land-grant institutions for educational and contributory purposes*

Institution	Administration and general	Percentage	Resident instruction	Percentage	General library	Percentage	Extension	Percentage	Experiment station and other organized research	Percentage	Physical plant operation and maintenance	Percentage	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Alabama Polytechnic Institute	$37,701	3.6	$499,549	47.4	$8,384	0.8	$366,660	34.7	$142,087	13.5	----------	----------	$1,054,381
Alaska Agricultural College and School of Mines	15,744	15.6	52,027	56.5	819	.8	----------	----------	----------	----------	$27,359	27.1	100,949
University of Arizona	81,972	7.8	494,783	47.1	29,108	2.8	109,721	10.5	197,539	18.8	136,832	13.0	1,049,955
University of Arkansas	130,052	11.5	346,847	30.7	53,733	4.7	276,557	24.5	238,885	21.1	85,197	7.5	1,131,271
University of California	537,240	6.6	4,541,286	55.6	331,004	4.0	903,330	11.0	1,246,983	15.3	614,303	7.5	8,174,146
Colorado Agricultural College	62,001	7.1	271,435	31.0	19,218	2.2	192,146	21.9	223,018	25.5	107,533	12.3	875,351
Connecticut Agricultural College	47,482	5.6	366,977	42.9	7,022	.8	145,167	17.0	92,570	10.8	195,667	22.9	854,885
University of Delaware	43,150	9.4	203,745	44.4	11,346	2.5	38,647	8.4	106,241	23.2	55,517	12.1	458,646
University of Florida	128,751	8.0	533,953	33.2	37,624	2.3	64,673	4.0	687,605	42.7	156,726	9.8	1,609,332
Georgia State College of Agriculture	126,831	14.9	188,190	22.1	7,399	.9	496,981	58.4	----------	----------	31,400	3.7	850,801
University of Hawaii	28,174	7.2	215,599	55.3	22,429	5.8	21,963	5.6	73,155	18.8	28,410	7.3	389,730
University of Idaho	57,460	5.5	490,844	47.3	23,631	2.3	117,612	11.3	126,495	12.2	221,709	21.4	1,037,751
University of Illinois	388,616	6.4	3,599,688	58.7	221,870	3.6	451,802	7.4	704,918	11.5	762,063	12.4	6,128,957
Purdue University	129,420	4.1	1,181,104	37.5	31,215	1.0	571,941	18.1	720,950	22.9	516,754	16.4	3,151,384
Iowa State College	155,218	4.8	1,672,381	51.4	99,121	3.0	460,424	14.1	482,437	14.8	386,154	11.9	3,255,735
Kansas State Agricultural College	109,984	5.3	1,273,659	61.0	53,250	2.5	271,788	13.0	188,308	9.0	192,424	9.2	2,089,413
University of Kentucky	76,540	4.1	706,317	38.2	34,636	1.9	503,843	27.2	365,716	19.8	162,177	8.8	1,849,229
Louisiana State University	46,712	3.4	520,354	38.1	38,170	2.8	366,725	26.9	207,618	15.2	184,829	13.6	1,364,408
University of Maine	72,456	7.7	453,452	48.5	18,448	2.0	113,830	12.2	128,532	13.8	147,557	15.8	934,275
University of Maryland	158,360	10.4	749,222	49.0	22,467	1.5	263,195	17.2	203,424	13.3	131,661	8.6	1,528,329
Massachusetts Agricultural College	55,754	5.4	431,101	41.4	17,854	1.7	116,979	11.2	214,349	20.6	205,273	19.7	1,041,310
Massachusetts Institute of Technology	262,280	10.0	1,400,555	53.4	44,747	1.7	----------	----------	[1] 504,180	19.3	408,643	15.6	2,620,405
Michigan State College	104,640	4.3	1,094,892	45.3	33,455	1.4	455,312	18.8	416,584	17.2	313,646	13.0	2,418,529
University of Minnesota	353,524	6.4	3,066,056	55.3	288,079	5.2	481,598	8.7	690,271	12.5	661,451	11.9	5,540,979
Mississippi Agricultural and Mechanical College	112,305	9.3	214,392	17.7	11,092	.9	486,026	40.1	194,934	16.1	193,055	15.9	1,211,804
University of Missouri	180,726	6.5	1,445,857	51.8	75,978	2.7	529,952	19.0	234,068	8.4	323,950	11.6	2,790,531
Montana State College	38,235	5.2	248,969	34.0	10,122	1.4	147,480	20.1	218,529	29.8	69,684	9.5	733,019
University of Nebraska	161,344	5.6	1,797,951	62.5	78,463	2.7	219,954	7.7	321,637	11.2	295,828	10.3	2,875,177
University of Nevada	35,318	7.4	218,525	45.9	13,415	2.8	82,802	17.4	75,357	15.8	51,058	10.7	476,475
University of New Hampshire	53,362	6.1	446,601	51.7	21,197	2.5	104,224	12.1	101,748	11.8	136,860	15.8	863,992

[1] This amount is designated as miscellaneous.

TABLE 14.—*Expenditures of land-grant institutions for educational and contributory purposes*—Continued

Institution	Administration and general	Percentage	Resident instruction	Percentage	General library	Percentage	Extension	Percentage	Experiment station and other organized research	Percentage	Physical plant operation and maintenance	Percentage	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Rutgers University	$137,406	6.5	$957,577	45.0	$39,925	1.9	$290,301	13.6	$490,694	23.0	$213,955	10.0	$2,129,858
New Mexico College of Agriculture and Mechanic Arts	23,214	5.5	139,781	33.2	4,175	1.0	138,425	32.9	88,524	21.0	27,055	6.4	421,174
Cornell University	759,742	12.9	3,896,067	65.9	82,249	1.4	[2]		679,606	11.5	491,524	8.3	5,909,188
North Carolina State College	64,468	4.6	501,440	35.5	22,300	1.5	588,210	41.6	144,273	10.2	93,719	6.6	1,414,410
North Dakota Agricultural College	54,474	5.6	311,544	31.8	16,551	1.7	163,386	16.7	320,575	32.7	112,252	11.5	978,782
Ohio State University	179,296	4.0	2,635,792	58.1	159,784	3.5	753,317	16.6	166,176	3.6	643,577	14.2	4,537,942
Oklahoma Agricultural and Mechanical College	139,819	10.0	762,058	54.3	27,073	1.9	266,423	19.0	126,261	9.0	80,825	5.8	1,402,459
Oregon Agricultural College	158,251	8.5	868,297	47.1	47,049	2.6	290,928	15.8	268,308	14.5	211,401	11.5	1,844,234
Pennsylvania State College	150,398	5.1	1,386,423	46.9	27,501	.9	860,003	29.1	271,789	9.2	258,529	8.8	2,954,643
University of Porto Rico	43,358	7.5	433,701	75.5	17,251	3.0			34,416	6.0	45,767	8.0	574,493
Rhode Island State College	104,503	30.3	125,497	36.4	2,559	.7	13,193	3.8	73,289	21.2	26,088	7.6	345,129
Clemson Agricultural College	30,144	5.3	265,117	46.9	9,878	1.7			195,350	34.5	65,381	11.6	565,870
South Dakota State College	36,352	3.8	356,909	37.8	10,550	1.1	240,526	25.5	122,406	13.0	178,044	18.8	944,787
University of Tennessee	102,637	6.8	764,890	51.0	54,611	3.6	306,973	20.5	128,701	8.6	142,715	9.5	1,500,527
Agricultural and Mechanical College of Texas	121,888	5.0	728,672	29.9	15,129	.6	829,124	34.1	484,312	19.9	254,338	10.5	2,433,463
Agricultural College of Utah	71,057	11.5	245,336	39.6	8,877	1.4	82,950	13.4	150,846	24.3	60,977	9.8	620,043
University of Vermont	82,117	11.1	404,886	54.6	10,436	1.4	69,081	9.3	108,326	14.6	66,454	9.0	741,300
Virginia Agricultural and Mechanical College	52,410	4.4	333,383	27.9	12,317	1.0	503,520	42.1	171,560	14.3	123,256	10.3	1,196,446
State College of Washington	85,471	5.5	709,334	45.5	39,212	2.5	279,991	18.0	266,632	17.1	178,539	11.4	1,559,179
West Virginia University	143,294	7.5	1,080,329	56.4	25,827	1.3	372,913	19.5	206,690	10.8	86,464	4.5	1,915,517
University of Wisconsin	336,674	5.9	3,701,181	65.3	109,151	1.9	683,817	12.1	145,553	2.6	692,300	12.2	5,668,676
University of Wyoming	83,841	11.2	361,060	48.2	27,857	3.7	97,629	13.1	122,672	16.4	55,617	7.4	748,676
Total	6,752,166	6.8	49,700,585	50.3	2,435,558	2.5	15,192,042	15.4	13,875,097	14.0	10,912,497	11.0	98,867,945

[2] Included under "Resident instruction."

The expenditures of 52 institutions for educational and contributory purposes totaled $98,867,945. Amounts expended for each purpose with the proportion of total expenditures are summarized in Table 15.

TABLE 15.—*Amounts expended for educational and contributory purposes with proportions for each*

Purpose	Amount of expenditures	Percentage of total
Administration and general	$6,752,166	6.8
Resident instruction	49,700,585	50.3
General library	2,435,558	2.5
Extension	15,192,042	15.4
Experiment station and other organized research	13,875,097	14.0
Physical plant operation and maintenance	10,912,497	11.0
Total	98,867,945	100.0

Resident instruction, general library, extension, experiment station, and other organized research make up the expenditures for strictly educational purposes. They comprise 82.2 per cent of the total expenditures. Administration and general expenses and physical plant operation and maintenance include expenditures contributory to educational work. The proportion for these items is 17.8 per cent. Such an allotment of expenditures to direct educational services as contrasted with activities contributory to education is representative only of the land-grant colleges as a whole. In order to make a genuine analysis it is necessary to examine the apportionments of expenditures for these items as found in the individual institutions. As increased or decreased expenditures for administration and general expenses and physical plant operations have the direct effect of either reducing or enhancing the expenditures available for educational work, it is deemed advantageous to consider them first.

Expenditures for administrative and general purposes include operating costs of administration, general offices, general departments, and expenses not directly connected with instruction. There are 22 colleges which expend more than the average of 6.8 per cent. In several cases the proportions are more than double the average. The range in these institutions is from 7.1 per cent to 30.3 per cent.

According to the tabulation, the percentage in 1 institution was 15.6; in another, 14.9; in a third, 12.9; in 4, from 11.1 to 11.5; in 3, from 10 to 10.4; and in 2, from 9.3 to 9.4.

There were nine colleges with proportions from 1 per cent above the average to percentages only slightly higher than the average. In some of these instances there may be opportunity for readjustment of administrative and general expenses, but in the aggregate the overhead costs may be regarded as not excessive. The proportion was from 8 to 8.5 per cent in two of the institutions and from

7.1 to 7.8 per cent in seven others. Thirty institutions had percentages less than the average, ranging down to 3.4 per cent of the total expenditures.

There was 1 college with a percentage of 3.6, 1 of 3.8, 1 of 4, 2 of 4.1, 1 of 4.3, 1 of 4.4, 1 of 4.6, and 1 of 4.8.

Overhead operating costs in these institutions appear to have been reduced to the minimum, or forms of classification conceal administrative and general expenses under other names.

Among the other colleges with percentages lower than the average are 1 with 5, 1 with 5.1, 1 with 5.2, 2 with 5.3, 1 with 5.4, 3 with 5.5, 3 with 5.6, and 1 with 5.9.

The proportion of expenditures for adminstrative and general purposes varied from 6.1 to 6.6 per cent in six institutions, while the University of Tennessee expended 6.8 per cent for this purpose, the exact average for the whole land-grant college group.

Physical plant operation and maintenance, which includes such items as heat, light, upkeep of buildings and grounds, power, janitor service, supplies and repairs, affords opportunity for economical business management. Small expenditures for this purpose result in the release of additional funds for academic needs and educational expansion. No more important problem confronts the land-grant colleges than the curtailment of the costs of operating and maintaining physical plants to the lowest possible figure consistent with proper and adequate maintenance. Yet from an examination of the tabulation it appears that expenditures for this item in 25 of the colleges, or approximately one-half, exceeded the average of 11 per cent for all the institutions. In 18 instances, the percentage was higher than 12, running to a maximum of 27.1 at Alaska Agricultural College. As some institutions are located in cold sections of the country and the climatic conditions have the effect of increasing their physical plant expenditures, justification may be found for the high proportions. At the same time there are 11 institutions to which this explanation does not wholly apply. A number of these colleges are located in warm southern States, while others are situated in temperate zones. In nine other institutions the expenditures for physical plant operation and maintenance were slightly in excess of the average, the percentage varying from 11.4 to 11.9.

Twenty-six institutions expended to operate and maintain their plants less than 11 per cent of the total. The lowest proportions are found in the Georgia State College of Agriculture with but 3.7 per cent, West Virginia University with 4.5 per cent and Oklahoma Agricultural and Mechanical College with 5.8 per cent. Mild climates or cheap fuel no doubt contribute to the decreased costs in the case of the institutions. Expenditures of the New Mexico College of Agriculture and Mechanic Arts amounted to 6.4 per cent of the

total expenditures and of the North Carolina State College 6.6 per cent, both of which are located in southern regions.

The operation and maintenance costs of the physical plants in 5 other colleges were between 7.3 and 7.6 per cent, in 5 between 8 and 8.8 per cent, and in 6 between 9 and 9.8 per cent.

Since only a limited number are situated in warm climates, it is obvious that the reduced operating expenses are traceable to economical and efficient management rather that climatic conditions. Of the remaining institutions there were five with percentages from 10 to 10.7. One institution was unable to furnish figures on physical plant operation and maintenance costs, its accounting methods evidently not providing for the segregation of expenditures under this item.

Emphasis has already been placed on the vital necessity of the reduction of overhead operating costs so that the highest possible expenditures out of the resources may be made for educational work. For this reason, it is interesting to consider the combined proportions of expenditures for both administration and general expense and of physical plant operation and maintenance in the different institutions. For 1928, an average of 17.8 per cent was expended for these items in all the land-grant colleges. Twenty-eight institutions exceeded this average, which should seem to indicate that in more than the majority of cases, overhead costs are on a higher level than general experience seems to warrant. In seven institutions, administration, general expense, and physical plant operation and maintenance expenditures were in excess of one-fourth of the total expenditures, ranging from 25.1 per cent up to 42.7 per cent. It is difficult to find justification for such heavy costs of overhead operation. At the same time the reasonable possibility of curtailing such costs to a substantial degree is presented in the fact that 23 institutions not only had proportions below the average of 17.8 per cent, but 10 of them ranged down as low as from 10.9 to 14.7 per cent. There were also five cases in which the overhead operating expenses were from 15.5 to 15.9 per cent and five from 16.3 to 16.9 per cent, all below the average. Proportions in the other institutions varied from 17 to 17.8 per cent.

Having considered the relationship of expenditures for overhead operating costs to expenditures for educational purposes, it is now proposed to analyze the educational expenditures. The impression prevails generally that the land-grant colleges are primarily resident teaching institutions concentrating their objectives on the instruction of students within the precincts of their local campus. An examination of the expenditures, however, reveals that the average proportion of expenditures of the 52 land-grant institutions for resident instruction was 50.3 per cent. Only 19 colleges expended in excess of this percentage, indicating that a large proportion of the expenditures of a majority of the colleges was devoted to purposes other than resident teaching. This is substantiated by study of the combined

proportions expended for extension experiment station and other organized research. The figures presented show that an average of 29.4 per cent of the total expenditures was for these items. The proportions of 29 institutions were higher than this average. Of the 52 land-grant colleges there were 16 where the expenditures for extension and for the experiment station and other organized research actually exceeded the expenditures for resident instruction. It is evident, therefore, that land-grant college higher education is a distinct type in itself, concerned not only with resident teaching, but also with state-wide education in agriculture, home economics, and other fields together with agricultural experimentation and research of various kinds.

The academic program of every institution pivots around expenditures for resident instruction. Including costs of operating the various subject-matter departments, the salaries of deans and the teachers of all ranks, the item constitutes a vitally important factor in the distribution of resources. The proportion of expenditures for resident instruction would be expected to be fairly uniform in most of the institutions even though a considerable number of them have concentrated on other educational objectives. Yet the percentages ranged from as high as 75.5 per cent to as low as 17.7 per cent, with an average, as already pointed out, of 50.8 per cent for the entire group. Only 19 colleges expended more than this average, while 33 colleges, or by far the greater majority, expended less. Institutions with very large proportions of their expenditures for resident instruction were the University of Porto Rico with 75.5 per cent, University of Wisconsin with 65.3 per cent, University of Nebraska with 62.5 per cent, and Kansas State Agricultural College with 62.5 per cent. Because of the fact that expenditures for extension were included in resident instruction, the percentage given for Cornell University (65.9) is not comparable. In the other cases with proportions in excess of the average were two with percentages of approximately 58, two 56, three 55, two 54, one 53, and four 51.

An examination of the tabulation indicates that of the 33 institutions with expenditures below the average for resident instruction there were a number where the proportions were extremely small. In the Mississippi Agricultural and Mechanical College, the percentage was only 17.7, in the Georgia State College of Agriculture 22.1, in the Virginia Agricultural and Mechanical College 27.9, in the Agricultural and Mechanical College of Texas 29.9, and in the University of Arkansas 30.7. While the educational expenditures of these institutions are concentrated principally upon either extension or agricultural experimentation and research it would appear that if an adequate resident program of instruction is to be carried out, a larger allotment of funds for this purpose would be essential.

A similar conclusion would seem to be warranted with reference to six other colleges where the expenditures for resident instruction consist of only 31 to 35.5 per cent of their total expenditures for educational purposes.

Extension represents the educational service rendered by the land-grant colleges to the people of the States through county agricultural agents, home demonstration agents, correspondence and evening courses, and similar activities not connected with regular academic work. That it is carried on upon a vast scale is indicated by the large expenditures made for this purpose. An average of 15.4 per cent of the total education expenditures was utilized for extension. While this may seem a small proportion on its face, an actual examination of the expenditures in the individual colleges shows that there were 27 with percentages above the average as compared with 20 below it. Expenditures of five institutions for extension exceeded their expenditures for resident instruction, the list including the Georgia State Agricultural College with a proportion of 58.4 per cent, Virginia Agricultural and Mechanical College with 42.1 per cent, North Carolina State College with 41.6 per cent, Mississippi Agricultural and Mechanical College with 40.1 per cent, and Agricultural and Mechanical College of Texas with 34.1 per cent. There were also several colleges with expenditures for extension which almost equaled their expenditures for resident instruction. Other institutions showing high proportions included one with 34.7 per cent, another 32.9 per cent, a third with 29.1 per cent, a fourth with 27.2 per cent, a fifth with 26.9 per cent, and a sixth with 25.1 per cent, all in excess of one-fourth of their total expenditures.

Although extension has been emphasized in the majority of the institutions, as just shown, there are a number of cases where the educational programs provide for only limited expenditures for this purpose. Seven institutions expended between 3.8 and 8.7 per cent for extension, a proportion far below the average of 15.4 per cent. Among them were the Rhode Island State College with a percentage of 3.8, University of Florida with 4, University of Hawaii with 5.6, University of Illinois with 7.4, University of Nebraska with 7.7, University of Delaware with 8.4, and University of Minnesota with 8.7. Educational objectives in most of these instances appear to be concentrated on resident teaching.

The costs of operating the agricultural experiment station, the engineering experiment station, and other forms of organized research, which are presented under a single item in the tabulation, comprise a substantial part of the educational expenditures. For the land-grant institutions as a group, the proportion was 14 per cent or almost as much as the proportion for extension.

In 24 colleges expenditures for this purpose exceeded those for extension and in 2 institutions they were higher than the expenditures for resident instruction. A further analysis shows that the proportions of expenditures in 29 institutions for agricultural and engineering experiment stations, including other organized research, were above the average. The University of Florida had the largest percentage with 42.7 followed by the Clemson Agricultural College with 34.5, North Dakota Agricultural College with 32.7, Montana State College with 29.8, and the Colorado Agricultural College with 25.5. There was also one college where the percentage was 24.3, two between 23 and 23.2, one 22.9, three between 21 and 21.2 and one 20.6.

Lesser expenditures for agricultural experiment station, engineering experiment station, and other forms of organized research were found in 21 institutions, the percentages being unusually low in several cases. Only 2.6 per cent of the total educational expenditures was made for this purpose in the University of Wisconsin and 3.6 per cent in the University of Ohio. The University of Porto Rico expended 6 per cent, University of Missouri 8.4 per cent, and University of Tennessee 8.6 per cent against the general average of 14 per cent for all the land-grant colleges. In the case of six other colleges, the proportion of expenditures for agricultural engineering and other research was small, the percentages in three being between 9 and 9.3 per cent and in three between 10.2 and 10.8 per cent. The Alaska Agricultural College had no expenditures for this purpose, not operating a station or conducting organized research, while a station is maintained separate and distinct from the institution in the case of the Georgia State College of Agriculture.

The general library is a service branch of all the educational functions of the institution. Not only should the allotment of expenditures be made with this point in view but ample funds should be provided so that such an objective may be accomplished. Of the expenditures of the 52 land-grant institutions it is found that only 14 expended a higher percentage than 2.5, the average for the entire group. In other words, the general library is apparently receiving relatively smaller consideration than other educational activity in the distribution of expenditures in approximately 65 per cent of the institutions. Attention must also be called to the fact that the figures represent expenditures for 1928 only and the high percentages for a number of the colleges were on a basis of a single year's expenditures rather than over a period of years. Among the colleges with larger proportions of library expenditures were the University of Hawaii with 5.8 per cent, University of Minnesota 5.2 per cent, University of Arkansas 4.7 per cent, and University of Wyoming, 3.7 per cent,

A conception of the extremely low expenditures for the general library is revealed in an examination of the figures for the 34 institutions below the average. In eight cases, the percentages are less than 1 per cent of the total educational expenditures, a proportion so small that it is difficult to comprehend how the library can be conducted in an efficient manner. The colleges with low library expenditures were the Agricultural and Mechanical College of Texas, its percentage being 0.6; Rhode Island State College, 0.7; Connecticut Agricultural College, Alaska Agricultural College, and Alabama Polytechnic Institute, all with percentages of 0.8.

There were likewise three institutions with percentages amounting to only 0.9, three 1, and one 1.1 per cent. In all these instances the expenditures for the general library were less than one-half of the average percentage of 2.6 for all the colleges. The proportion in another case was 1.3 per cent; in four, 1.4 per cent; in two, 1.5 per cent; in four, 1.7 per cent; and in four 1.9 per cent, further evidence that small library expenditures prevail generally in comparison with other educational expenditures in many of the institutions.

Properties

The properties of the land-grant institutions, both educational and income-yielding, represent permanent assets.

Income is secured through public support and other channels, and properties or investments may not be hypothecated to meet current expenses or other emergencies. Unlike private business enterprises or even private educational institutions, their capital assets must remain intact and unencumbered, except for occasional mortgages authorized by law to construct dormitories or other types of improvements.

Several of the land-grant institutions are semiprivate, a part or all their properties being held by corporate bodies. In others the ownership of their lands, buildings, and other holdings of every type is vested in the States.

The grand total value of all the properties of the 52 colleges was $427,005,366, based on original costs, appraisals, or both costs and appraisals. Of the total sum, $46,067,395, or 10.8 per cent, comprises the value of campus and grounds; $173,144,579, or 40.5 per cent, buildings exclusive of residence halls; $20,285,068, or 4.8 per cent, residence halls; $53,867,791, or 12.6 per cent, apparatus, machinery, and furniture; $2,660,686, or 0.06 per cent, livestock; $16,450,989, or 3.8 per cent, library books; $27,709,168, or 6.5 per cent, Federal grant endowments; $76,299,558, or 17.9 per cent, other endowments; and $10,520,132, or 2.5 per cent, miscellaneous properties. In Table 16 are presented the property valuations of the individual institutions on a basis of these classifications.

TABLE 16.—*Value of properties of land-grant institutions for year, 1928*

Institution	Campus and grounds	Buildings (not including dormitories)	Dormitories	Apparatus, machinery, furniture	Livestock	Library books	Federal grant endowments (1)	Other endowments	Miscellaneous properties	Grand total
1	2	3	4	5	6	7	8	9	10	11
Alabama Polytechnic Institute	$154,000	$1,105,500	$160,000	$401,785	$15,000	$80,000	$253,500			$2,169,785
Alaska Agriculture College and School of Mines	5,168	156,810	60,000	117,022		17,277	50,000			406,277
University of Arizona	448,300	1,396,289	463,335	539,592	18,682	146,000	649,921	$22,216		3,684,335
University of Arkansas	140,000	1,250,000	125,000	475,000	30,000	200,000	132,668			2,352,668
University of California	7,717,222	16,000,272	104,272	3,878,570	73,029	1,890,931	836,125	12,444,188	$3,360,436	46,305,045
Colorado Agricultural College	161,473	2,500,000		500,000	30,947	135,758	401,893		114,312	3,844,383
Connecticut Agricultural College	109,695	1,423,387	690,500	436,467	69,142	35,000	135,000		219,897	3,119,088
University of Delaware	270,675	1,121,088	636,741	455,967	15,332	180,000	83,000	450,666		3,213,469
University of Florida	600,000	1,526,230	296,825	2,049,000	24,620	135,000	285,046	40,000	317,000	5,273,721
Georgia State College of Agriculture	623,000	592,973	325,000	218,147	21,610	98,500	242,202	20,000		2,141,432
University of Hawaii	1,641,216	566,501	43,315	203,577	15,225	149,810		6,296	55,736	2,681,676
University of Idaho	130,000	800,000	500,000	430,000	60,000	119,500	2,016,400			4,055,900
University of Illinois	1,564,568	14,207,070	498,607	3,437,678	97,174	1,618,440	649,013	460,307	803,003	23,335,860
Purdue University	491,842	3,388,975	202,150	1,409,828	90,243	124,139	340,000	11,733	340,114	6,399,024
Iowa State College	694,718	5,198,126	813,261	2,266,457	98,926	477,741	592,463	102,579	327,171	10,571,442
Kansas State Agricultural College	679,357	2,701,135	175,000	1,036,602	96,742	289,420	505,509		195,072	5,678,837
University of Kentucky	477,605	1,498,575	414,074	504,557	49,487	144,501	144,078	40,000		3,272,877
Louisiana State University	600,000	4,580,000	475,000	603,632	50,000	110,782	318,213			6,737,627
University of Maine	40,985	881,929	163,487	386,199	12,425	102,713	118,300	748,523		2,454,561
University of Maryland	298,900	1,798,750	425,500	549,158	15,929	119,510	117,463		657,191	4,012,401
Massachusetts Agricultural College	139,393	1,388,766	192,383	700,016	60,676	155,369	146,000	94,667	80,930	2,958,200
Massachusetts Institute of Technology	3,200,000	7,343,000	710,000	2,200,000		300,000	73,000	29,818,373		43,644,373
Michigan State College	174,222	4,023,200	161,000	1,310,130	108,458	148,560	1,053,898			6,979,468
University of Minnesota	6,619,016	14,188,106	950,490	3,020,833	113,037	1,708,305	3,914,887	3,739,692	1,590,838	35,845,204
Mississippi Agricultural and Mechanical College	277,395	1,330,470	321,135	834,627	42,838	89,094	239,788			3,135,347
University of Missouri	897,443	4,995,647	34,000	1,745,008	62,942	940,197	589,321	1,323,480	225,000	10,813,038
Montana State College	205,305	1,475,000	65,000	278,092	20,382	88,950	780,417	5,000		2,918,146
University of Nebraska	2,606,246	5,041,415	123,325	1,571,395	153,504	503,597	950,841		350,885	11,301,208
University of Nevada	139,800	1,213,200	172,516	243,591	35,805	74,961	180,396	155,300		2,215,569
University of New Hampshire	81,000	966,000	785,000	340,000	25,000	60,000	80,000	960,000	250,000	3,547,000

Rutgers University	1,887,986	4,040,041	1,211,962	1,097,397	50,000	553,288	116,000	3,552,476		12,509,150
New Mexico College of Agriculture and Mechanic Arts	50,000	370,000	50,000	190,000	25,000	62,000	122,202		7,500	876,702
Cornell University	600,395	9,975,671	1,221,283	2,810,913	40,260	1,179,634	688,576	19,320,532		35,837,264
North Carolina State College	166,867	2,312,148	1,053,962	406,864	25,414	63,831	125,000		100,000	4,254,086
North Dakota Agricultural College	143,710	1,364,796	246,646	816,447	33,440	88,116	1,561,081			4,254,236
Ohio State University	3,425,632	8,908,399	264,102	2,462,824	45,035	790,905	750,461	379,129		17,026,487
Oklahoma Agricultural and Mechanical College	142,712	1,635,262	387,000	640,384	144,899	123,108				3,073,365
Oregon Agricultural College	746,266	3,245,496	741,854	1,037,823	94,321	223,038	203,563		206,336	6,498,697
Pennsylvania State College	186,187	4,910,000	1,050,000	2,710,726	65,055	621,955	517,000			10,060,923
University of Porto Rico	78,702	497,497	67,630	180,397	2,575	37,545		223,590	105,319	1,193,255
Rhode Island State College	18,000	550,000	150,000	200,000	12,000	70,000	50,000			1,050,000
Clemson Agricultural College	362,329	1,065,958	281,000	358,857	46,964	57,292	95,900	58,540		2,326,840
South Dakota State College	95,680	950,722	231,000	504,075	23,440	79,276	747,198			2,631,391
University of Tennessee	2,037,730	3,133,754	294,816	809,661	45,325	220,276	400,000	46,260	142,526	7,130,348
Agricultural and Mechanical College of Texas	508,104	3,357,811	864,511	1,216,894	161,870	139,677	209,000		340,670	6,798,537
Agricultural College of Utah	64,500	1,221,700		210,643	39,546	78,496	298,439			1,913,324
University of Vermont	100,000	1,647,000	303,000	[2] 165,000	13,000	[2] 185,000	135,000	1,901,066		4,449,066
Virginia Agricultural and Mechanical College	252,700	1,847,600	528,400	682,200	53,000	74,000	344,312		245,480	4,027,692
State College of Washington	262,939	1,965,734	215,986	475,316	58,562	157,165	2,690,778		254,248	6,080,728
West Virginia University	1,633,436	4,052,446	200,000	742,105	55,132	180,491	115,000		212,468	7,191,078
University of Wisconsin	1,748,876	9,898,130	500,000	3,659,335	97,693	1,011,841	536,692	374,945		17,827,512
University of Wyoming	366,100	1,536,000	335,000	347,000	21,000	180,000	2,123,624		18,000	4,926,724
Total	46,067,395	173,144,579	20,285,068	53,867,791	2,660,686	16,450,989	27,709,168	76,299,558	10,520,132	427,005,366

[1] Not including value of unsold land.

[2] Figures for 1927.

The major proportion of the capital outlays of the colleges consists of real property, such as lands, buildings, and improvements. The total of the four items of campus and grounds, educational buildings, residence halls, and miscellaneous properties, the latter including experiment stations, museums, light and water plants, amounted to $250,017,174, or 58.6 per cent of the entire valuation. In contrast with this type are properties subject to more frequent replacement, such as apparatus, machinery, furniture, livestock, and library books. The land-grant colleges had a total of $72,979,466 invested in such properties, or 17 per cent. The value of both Federal grant and other kinds of endowments owned by the colleges amounted to $104,008,726, or 24.4 per cent of their total holdings. This is a remarkably large proportion in view of the fact that the institutions are publicly owned and publicly operated.

A significant factor in the appraisal of the properties is the gain in valuations indicating not only the growth of the colleges as revealed by larger physical plants, but also the enhancement in the capital investments. Although complete figures were not available to show annual increases, sufficient data were obtained in the survey for a comparison between the values of the properties owned by the institutions in 1915 and in 1928, which is as follows:

Property	Amount for 1915	Amount for 1928	Amount of increase	Percentage of increase
Campus and grounds	$18,501,068	$46,067,395	$27,566,327	149
Buildings, including residence halls	63,045,833	193,429,647	130,383,814	206
Apparatus, machinery, and furniture	18,025,351	53,867,791	35,842,440	198
Library books	6,061,774	16,450,989	10,389,215	171
Livestock	1,227,278	2,660,686	1,433,408	116
Federal grant endowments	25,288,358	27,709,168	2,420,810	9
Other endowments	25,855,452	76,299,558	50,444,106	194
Miscellaneous properties	6,824,377	10,520,132	3,695,755	54
Total	164,829,491	427,005,366	262,175,875	159

The summary discloses that the properties of the land-grant institutions have materially gained in value between 1915 and 1928, the total percentage of increase being 159. The presumption is that because of the heavy capital outlays for this purpose, the value of buildings would show the greatest rate of gain. While the percentage of increase for this item amounted to 206, almost as large rates of gain were found in the value of apparatus, machinery, and furniture, the increase amounting to 198 per cent, and also in the value of the library books with an increase of 171 per cent. It is evident, therefore, that many colleges have recognized the necessity of increased equipment and library facilities during this period. The value of the livestock owned by the institutions, an important factor in agricultural instruction, showed a rate of gain of 116 per cent and the percentage of increase in the value of campus and grounds, a

large part of which is utilized for agricultural experimentation and research, was 149. A larger increase than 9 per cent in Federal grant endowments was not to be expected, many of them having been established years ago, but the value of other endowments gained at the rate of 194 per cent or almost as high as the rate for any other type of property owned by the colleges. Miscellaneous properties showed an increase of 54 per cent, but because of the difference in the items included under the heading in 1915 as compared with 1928 it is probable that this figure has little meaning.

Student Fees

The original conception of the land-grant college was a free institution of higher education. Supported by taxation, it was regarded as a college or university of the people where youthful citizens of the State were to have the privilege of attending without charge. It was to be an integral part of the free public-school system, the child being able to pass from the common school to the high school and finally to the State land-grant college or university. In contradistinction to the private institution, the students were to be exempt from the payment of tuition or fees.

That this policy has long since been abandoned in practically all of the institutions is evidenced by an examination of their income. There is no institution that does not have revenues from student fees. While no charge is made for tuition in some cases, a number of fees of varied character is found generally in the land-grant college group of both separated colleges and State universities. Moreover, an examination of the returns made in the survey shows student fees have been very materially increased since 1915 not only in number but also in amount.

Student fees are divided into three general types, tuition or incidental fees covering cost of instruction, special fees levied for specific purposes, and laboratory fees charged for the use of the laboratories. The first question involved in a study of the subject is by what authority the fees are determined. In the case of six States the constitution prohibits the charge of any tuition or incidental fees. The legislatures of 10 States have taken a similar step by statutory enactment. Authority to make tuition free is vested in the governing boards of 17 institutions, in the president at 2, and in the faculty at 1. Since the colleges are operated by the States for the benefit of their own citizens, there are two classes of tuition or incidental charges, one for resident students and another for nonresident students. The amount of tuition levied against resident students has been determined by the State constitution in 3 institutions and by the State legislature in 3 others while the governing board exercises

the authority in 25 and the university senate in 1. Nonresident tuition charges have been definitely fixed by the State constitutions in 3 instances and by the State legislature in 6. The governing boards are empowered to determine nonresident tuition fees in 31 other institutions and the university senate in 1.

A charge ordinarily assessed against all students and which is a source of considerable income, is the matriculation fee. The State constitution has provided the amount to be levied for matriculation at 1 institution and the State legislature at 4, while in 31 authority over the determination of the matriculation fee is vested in the board of trustees. The charge for matriculation is fixed by the president in 1 other case, by the university senate in 1, and by the comptroller in 1.

According to the reports received the determination of special fees levied for specific purposes is vested in practically the same authorities in the different institutions. The State constitution fixed the amount in 1, the State legislature by statutory enactment in 2, the governing boards of the colleges in 32, the university senate in 1, and the comptroller in 1. A different situation exists with regard to the authority over the assessment of laboratory fees. While the State constitution fixed the laboratory fees charged in 1 institution, the State legislature in 2, and the governing boards in 24, there are 4 where the faculty exercises jurisdiction, 2 the president, 1 the university senate, 1 the comptroller, and 1 the departments. As has already been pointed out, the assessment of fees against students involves a reversal of the original policy of the land-grant colleges. The question is also of significance in the entire State program of free public education. It would seem, therefore, that the final control over levying of student fees of every type should be vested in the governing bodies, except where the State, through its constitution and its legislature, has assumed jurisdiction, rather than in the president, faculty members, or the business officer of the institution.

The amount of the various classes of student fees is of vital importance to the students who are compelled to pay them. It is also of paramount interest to the institutions in providing revenues for their support. An attempt was made to secure detailed data on the exact amount of every fee levied in the land-grant colleges for the year 1928 in order to ascertain the cost of attendance to the student. For the purpose of learning the increase in the fees, similar data were collected for the year 1915. As reports were received from only 44 institutions and the returns in some instances were confused, the information is far from complete. The amounts of the different types of student fees will be considered separately. In Table 17 is shown the annual tuition or incidental fees to resident and nonresident students in each of the major divisions for 1915 and 1928.

An examination of the table discloses that 31 of the 44 land-grant colleges reporting charged tuition or incidental fees. The amount was generally uniform for the different major divisions of the same institution except in the case of schools and colleges of law, medicine, pharmacy, and veterinary medicine where higher tuition charges were found. As the fees levied for instruction in agriculture are typical, the discussion will be confined to this single division, although data on the remaining divisions are available in the compilation.

Twenty-eight of the institutions assessed annual tuition or incidental fees against resident students taking agricultural courses. The amounts varied from as low as $2 in the Oklahoma Agricultural and Mechanical College to as high as $300 in the University of Vermont.

There is 1 college where the charge was $140, 4 between $100 and $125, 9 between $50 and $75, 4 between $25 and $50, and 8 between $10 and $25. Six of these colleges charged no resident tuition whatever against agricultural students in 1915 so that the assessment in 1928 represented a fee not previously levied. In the case of the 22 other colleges the highest tuition fee for agriculture in 1915 was $130 and the lowest $5 with only 1 institution where the fee was $110, 1 $50, 5 between $25 and $50, 11 between $10 and $25, and 3 between $5 and 10.

It is obvious, therefore, that an increase in tuition for resident agricultural students of 100 per cent or more was made in most of the colleges between 1915 and 1928. In only two instances was the fee not advanced and in none was it reduced.

Further inspection of the tabulation shows that a tuition charge against nonresident students in agriculture was made by 31 of the institutions in 1928. The amount was greatly in excess of the fee assessed against resident students. It varied from $300 in the University of Vermont to $17 in the Agricultural and Mechanical College of Texas.

There were 3 colleges where nonresident agricultural students paid between $240 and $260, 3 between $175 and $200, 3 between $150 and $175, 2 between $125 and $150, 5 between $100 and $125, 4 between $75 and $100, 6 between $50 and $75, and 3 between $25 and $50.

A conception of the advance in the rates is obtained in comparing the amounts for tuition in 1915. Four of the colleges listed charged no such fee in 1915 to nonresident agricultural students. The highest in any institution was $150 in 1915 as compared with $300 in 1928.

There were 2 colleges where nonresident students in agriculture paid between $125 and $150 in 1915, 2 between $100 and $125, 2 between $75 and $100, 6 between $50 and $75, 7 between $25 and $50, 4 between $10 and $25, and in 4 the fee was less than $10.

On a basis of these figures, it is evident that the nonresident tuition was raised in all the institutions with two exceptions, the percentages of increase ranging from 50 to 500. As previously stated, the advancement of both resident and nonresident tuition just cited applies almost uniformly throughout all the different major divisions.

TABLE 17.—*Annual tuition or incidental fees of land-grant institutions showing*

Institution	Agriculture				Arts				Commerce			
	1915		1928		1915		1928		1915		1928	
	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident
1	2	3	4	5	6	7	8	9	10	11	12	13
Alabama Polytechnic Institute	0	0	$65	$90	0	0	$65	$90				
University of Arizona	$20	$60	20	100	$20	$60	20	100	$20	$60	$20	$100
University of California	0	20	50	200	0	20	50	200	150	150	325	345
Colorado Agricultural College	5	5	14	39	5	5	14	39				
Connecticut Agricultural College	30	90	110	260								
University of Florida	13	33	41	141								
Georgia State College of Agriculture	50	150	100	200	50	150	100	200	50	150	100	200
University of Hawaii					0	0	10	25				
University of Idaho												
University of Illinois	24	24	50	75	24	24	50	75	24	24	50	75
Purdue University	10	35	10	60								
Iowa State College	18	68	72	112	18	68	90	112				
University of Maryland	0	50	115	240	0	50	115	240				
Massachusetts Institute of Technology												
University of Minnesota	30	60	60	90	30	60	60	90	0	0	90	120
University of Missouri	20	40	60	80	20	40	60	80	20	40	60	80
Montana State College	15	15	50	125	15	15	50	125				
Rutgers University	130	130	140	140	130	130	260	260				
Cornell University	0	125	0	200	125	125	350	350				
North Carolina State College	45	45	60	80					0	0	60	80
North Dakota Agricultural College	21	30	37	60	21	30	37	60				
Ohio State University	30	30	60	165	30	30	60	165	0	0	60	165
Oklahoma Agricultural and Mechanical College	0	0	2	30	0	0	2	30	0	0	2	30
Oregon Agricultural College	0	0	36	150	0	0	36	150	0	0	36	150
Pennsylvania State College	35	35	100	250	35	35	100	250				
Rhode Island State College	0	50	0	50	0	50	0	50	0	50	0	50
South Dakota State College	12	12	21	102	12	12	40	50	12	12	40	50
University of Tennessee	10	90	21	102	10	90	21	102	10	90	21	102
Agricultural and Mechanical College of Texas	5	5	17	17	0	0	17	17				
University of Vermont	110	110	300	300	110	110	300	300				
Virginia Agricultural and Mechanical College	0	60	0	120	0	60	0	120				
State College of Washington	0	0	10	150	0	0	10	150				
University of Wisconsin	24	148	24	148	24	148	24	148	24	148	24	148
University of Wyoming	6	6	30	45	6	6	30	45				

[1] Separate fee for each course offered.

increases between 1915 and 1928 by colleges, schools, or major divisions

Dentistry				Education				Engineering				Graduate school				Home economics			
1915		1928		1915		1928		1915		1928		1915		1928		1915		1928	
Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
												0.00	0.00	$65.00	$90.00				
				$20	$60	$20	$100	$20	$60	$20	$100					$20	$60	$20	$100
$150	$150	$325	$345	0	20	50	100	0	20	50	200	0	$20.00	50.00	200.00	0	20	50	200
				5	5	14	39	5	5	14	39	0	0	14.00	39.00	5	5	14	39
								30	90	110	260					30	90	110	260
				13	33	41	141					$7.50	7.50	7.50	7.50				
				50	150	100	200	50	150	100	200	50.00	150.00	100.00	200.00	50	150	100	200
150	150	180	210	24	24	50	75	24	24	50	75	24.00	24.00	50.00	75.00	24	24	50	75
								10	35	10	60					10	35	10	60
								18	68	100	140	18.00	68.00	90.00	130.00	18	68	90	130
				0	50	115	240	0	50	115	240					0	50	115	240
								250	250	400	400								
175	175	180	210	30	60	60	90	50	50	90	120	30.00	30.00	60.00	90.00				
				20	40	60	80	20	40	60	80	20.00	20.00	60.00	60.00	20	40	60	80
				15	15	50	125	15	15	50	125					15	15	50	125
				0	0	260	260	130	130	260	260	160.00	160.00	260.00	260.00	0	0	150	150
								150	150	350	350	0	0	75.00	75.00	0	0	0	200
				0	0	60	80	45	45	60	80	0	0	60.00	80.00				
				21	30	37	60	21	30	37	60	0	0	25.00	25.00	21	30	37	60
150	0	180	225	30	30	60	165	30	30	60	165	30.00	30.00	60.00	165.00	30	30	60	165
				0	0	2	30	0	0	2	30	0	0	2.00	30.00	0	0	2	30
				0	0	36	150	0	0	36	150	0	0	36.00	150.00	0	0	36	150
				35	35	100	250	35	35	100	250	35.00	35.00	100.00	250.00	35	35	100	250
								50	0	50	0	0	5.00	0	5.00	0	50	0	50
								12	12	40	50								
150	0	125	225	10	90	21	102	10	90	21	102	10.00	10.00	10.00	10.00	10	90	21	102
				0	0	17	17	5	5	17	17	5.00	5.00	17.00	17.00				
								110	110	300	300					110	110	300	300
								0	60	0	120								
				0	0	10	75	0	0	10	75					0	0	10	75
				24	148	24	148	24	148	24	148	24.00	148.00	24.00	148.00	24	148	24	148
				6	6	30	45	6	6	30	45					6	6	30	45

TABLE 17.—*Annual tuition or incidental fees of land-grant institutions showing*

Institution	Law				Library				Medicine			
	1915		1928		1915		1928		1915		1928	
	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident
1	34	35	36	37	38	39	40	41	42	43	44	45
Alabama Polytechnic Institute												
University of Arizona	$20	$60	$20	$100								
University of California	0	20	50	175	0	$20	$50	$200	$150	$150	$250	$550
Colorado Agricultural College												
Connecticut Agricultural College												
University of Florida	53	73	81	181								
Georgia State College of Agriculture	50	150	100	200								
University of Hawaii												
University of Idaho	25	25	25	25								
University of Illinois	50	50	100	150	$24	24	50	75	140	140	170	205
Purdue University												
Iowa State College												
University of Maryland					0	0	5	5				
Massachusetts Institute of Technology												
University of Minnesota	65	65	120	150					150	150	225	300
University of Missouri	20	40	60	80					20	40	60	80
Montana State College												
Rutgers University												
Cornell University	125	125	250	250					150	150	500	500
North Carolina State College												
North Dakota Agricultural College												
Ohio State University	60	60	105	210					150	150	180	285
Oklahoma Agricultural and Mechanical College												
Oregon Agricultural College												
Pennsylvania State College												
Rhode Island State College												
South Dakota State College												
University of Tennessee	100	100	100	100					100	125	125	225
Agricultural and Mechanical College of Texas												
University of Vermont									130	130	300	375
State College of Washington												
University of Wisconsin	24	148	24	148	50	100	50	100	24	148	24	148
University of Wyoming	6	6	30	45								

[1] Separate fee for each course offered.

In addition to tuition or incidental fees, practically every land-grant college assesses special fees against its students. Such fees are usualy levied on the basis of supporting the specific activities for which they are collected, although the moneys are not always paid over to the activities but are frequently turned into the general institutional funds. It is frequently claimed that the payment of special fees is optional. The returns show that in only a small number of colleges is this the case. In making an analysis of special fees it is

increases between 1915 and 1928 by colleges, schools, or major divisions—Con.

Music				Pharmacy				Veterinary medicine				Extension				Other			
1915		1928		1915		1928		1915		1928		1915		1928		1915		1928	
Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident
46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
				0	0	$75	$100	0	0	$70	$95								
$20	$60	$20	$100									$20	$60	$20	$100				
0	20	50	200	$100	$100	250	250	0	$20	50	200	6	6	6	6				
								$5	30	14	39								
				0	0	41	141												
				50	150	100	200	50	150	100	200								
0	0	60	60																
24	32	50	75	125	125	140	190												
				10	35	10	35					(1)				$10	$35	$10	$60
								18	68	72	112					18	68	72	112
				82	82	105	135												
20	40	60	80					20	40	60	80								
44	44	54	54																
				0	0	260	260												
								0	100	0	200								
				21	30	37	60	21	30	37	60					21	30	37	60
				30	30	60	165	30	30	60	165								
0	0	15	30					0	0	2	30								
0	0	36	150	0	0	36	150	0	0	36	150								
												35	35	100	250				
				12	12	40	50					0	0	8	0				
				0	100	105	130	0	0	17	17								
0	0	10	75	0	0	10	75	0	0	10	75	0	0	10	75	0	0	10	75
24	148	24	148	24	148	24	148	24	148	24	148	(1)							
												6	6	30	45	6	6	30	45

necessary to consider not only the amounts charged and the specific activities for which they are assessed, but also whether they are optional and whether they are paid into the activities. The total of all the special fees collected from the student is likewise essential. Comparison of the amounts charged in different years for each kind of special fee, as well as the totals, discloses whether they are being increased. Table 18 presents this information for 1915 and 1928 by institutions.

TABLE 18.—*Annual special fees of land-grant insti*

Institution	Athletic		Diploma		Health		Matriculation		Union	
	1915	1928	1915	1928	1915	1928	1915	1928	1915	1928
1	2	3	4	5	6	7	8	9	10	11
Alabama Polytechnic Institute	0	$7.50								
Alaska Agricultural College and School of Mines			0	$5.00						
University of Arizona	$10.00	10.00	0	5.00	0	$10.00	0	$20.00		
University of California			$20.00		$6.00	0	$5.00	10.00		
Colorado Agricultural College	3.00	3.00	5.00	5.00			9.00	10.00		
Connecticut Agricultural College	0	15.00	0	5.00			0	5.00		
University of Florida	5.00	10.00	5.00	5.00	3.00	6.00	5.00	7.50		
University of Hawaii			0	5.00			0	20.00		
University of Illinois			10.00	10.00			10.00	10.00		
Purdue University			5.00	5.00	1.00	4.00	5.00	5.00	0	8.00
Iowa State College			5.00	15.00			0	10.00	0	3.00
Kansas State Agricultural College			0	10.00	0	6.00	0	10.00		
University of Kentucky	7.00	9.00	0	5.00						
Louisiana State University	5.00	8.00	5.00	5.00	10.00	10.00	7.00	10.00		
University of Maryland	10.00	15.00	0	10.00			0	5.00		
Massachusetts Agricultural College	8.00	15.00	5.00	5.00			5.00	5.00	$1.50	1.50
Massachusetts Institute of Technology	5.00	0			1.00	0			1.00	0
Michigan State College	6.00	15.00	5.00	5.00			5.00	5.00	0	4.50
University of Minnesota	5.00	8.00	0	5.00	0	9.00			2.00	3.00
Mississippi Agricultural and Mechanical College	0	10.00	0	5.00	0	8.50	0	10.00	0	2.50
Montana State College	0	10.00	0	5.00	0	2.00	0	5.00		
University of Nebraska			5.00	5.00	1.00	0	5.00	5.00		
University of New Hampshire			5.00	5.00	0	4.50				
Rutgers University	0	12.00	7.00	7.00	0	10.00	5.00	5.00		
Cornell University			10.00	10.00	6.00	10.00	5.00	10.00	0	8.00
North Carolina State College	0	10.00	0	5.00	0	6.00	0	6.00		
North Dakota Agricultural College	0	6.00			0	.90	5.00	10.00		
Ohio State University			10.00	10.00			0	10.00	2.00	3.00
Oklahoma Agricultural and Mechanical College	0	9.00	3.00	3.00			0	1.00		
Oregon Agricultural College	5.00	15.00	5.00	5.00	0	6.00			0	9.00
Pennsylvania State College	6.00	15.00	6.50	8.00	0	2.00				
Rhode Island State College	10.00	20.00	5.00	5.00						
Clemson Agricultural College	0	7.50			0	11.25	0	3.00		
South Dakota State College	10.50	10.50	2.00	5.00	0	5.00				
University of Tennessee			5.00	5.00	0	5.00	5.00	5.00		
Agricultural and Mechanical College of Texas			5.00	0	8.00	10.00				
Agricultural College of Utah			5.00	5.00						
University of Vermont	10.00	20.00	8.00	10.00						
Virginia Agricultural and Mechanical College			3.50	5.00	0	4.00				
State College of Washington			0	5.00	2.00	4.00				
University of Wisconsin					0	7.00				
University of Wyoming	0	14.00	0	5.00			2.00	2.00		

[1] Average. [2] Included in laboratory fees. [3] Decrease.

tutions showing increases between 1915 and 1928

Gymnasium		Library		Class dues		College paper		Other		Total optional		Total increase in optional fees between 1915 and 1928	Total required		Total increase in required fees between 1915 and 1928
1915	1928	1915	1928	1915	1928	1915	1928	1915	1928	1915	1928		1915	1928	
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
				0	[1] $2.00					0	0	0	0	$9.50	$9.50
										0	0	0	0	5.00	5.00
										0	0	0	$10.00	45.00	35.00
$4.00	0	$25.00	$50.00							0	0	0	60.00	60.00	0
2.00	$4.00	2.00	4.00			$2.00	$2.00	$8.00	$8.00	0	0	0	31.00	36.00	5.00
								0	5.00	0	$15.00	$15.00	0	15.00	15.00
0	2.50									0	0	0	18.00	26.00	8.00
										0	0	0	0	25.00	25.00
1.00	2.00									0	0	0	21.00	22.00	5.00
		20.00	[2] 40.00					0	2.00	0	0	0	31.00	64.00	33.00
				$1.50	0					0	0	0	6.50	28.00	21.50
						0	2.00	0	10.00	0	2.00	2.00	0	36.00	36.00
				0	1.00	1.08	1.08	.36	.36	$0.36	.36	0	8.08	16.08	8.00
		0	5.00			0	6.00			10.00	10.00	0	17.00	34.00	17.00
		0	5.00							0	0	0	10.00	35.00	25.00
				0	1.25	0	2.00			0	0	0	19.50	29.75	10.25
				1.00	0			1.00	0	0	0	0	9.00	0	[3] 9.00
2.50	0			0	1.05	0	1.00			0	0	0	18.50	31.55	13.05
5.00	7.50	0	3.00			0	1.50			5.00	13.00	8.00	7.00	24.00	17.00
0	2.50	0	5.00			0	1.50			0	0	0	0	45.00	45.00
						0	1.50			0	0	0	0	23.50	23.50
		1.00	0							0	0	0	12.00	10.00	[3] 2.00
										0	0	0	5.00	9.50	4.50
						0	2.50			0	0	0	12.00	36.50	24.50
4.00	4.00							20.00	20.00	0	0	0	45.00	62.00	17.00
0	6.00	0	4.50	0	6.75			0	21.00	0	21.00	21.00	0	44.25	44.25
				0	.75	0	1.50	0	3.75	0	3.75	3.75	5.00	19.15	14.15
4.00	3.00									0	0	0	16.00	26.00	10.00
		0	1.00			0	3.00	0	2.00	0	14.00	14.00	3.00	5.00	2.00
3.00	6.00			0	1.50			5.00	0	0	0	0	18.00	42.50	24.50
4.00	8.00	3.00	5.00					0	.50	0	0	0	19.50	38.50	19.00
										0	0	0	15.00	25.00	10.00
										0	11.25	11.25	0	10.50	10.50
										10.50	10.50	0	2.00	10.00	8.00
0	4.50	2.00	4.50							0	4.50	4.50	10.00	19.50	9.50
								5.00	17.00	0	0	0	18.00	27.00	9.00
3.00	3.00									0	0	0	8.00	8.00	0
				0	3.00	0	2.00			0	0	0	18.00	35.00	17.00
		0	2.00							0	0	0	3.50	11.00	7.50
0	3.50	1.00	2.00	0	1.00			10.00	13.00	0	0	0	13.00	28.50	15.50
2.50	4.00	0	2.00							0	0	0	2.50	13.00	10.50
0	7.50							0	27.50	0	35.00	35.00	2.00	21.00	19.00

An athletic fee is charged in 23 of the land-grant colleges. Payment of the fee is required in 20 of them and in 3 it is optional. In all cases the fee is paid to the activity although collected by the institution. The amount of the fee in 1928 varied from $3 to $20 as compared with a range of $3 to $10.50 in 1915, indicating that it has been raised to a considerable extent during this period in the different institutions. Ten of the colleges charged an athletic fee in 1928 although none was levied in 1915. In one instance, the fee was discontinued between 1915 and 1928.

According to the tabulation, 35 institutions levied a diploma fee against student graduates. The fee was paid to the activity in only 6 cases and in the remainder was paid into the general institutional funds. The highest diploma fee in any of the colleges in 1928 was $15 and the lowest $3. There were 13 institutions charging no diploma fee in 1915 that levied such a fee in 1928 while 5 others raised the fee in amounts ranging from $1.50 to $10.

Twenty-two colleges levied a health fee against their students in 1928, its payment being required in 20 cases and optional in 2. Income from the fee was paid to the activity at 11 institutions and into the general funds at 11. The amount varied from as low as 90 cents to as high as $11.25. That the health fee is a comparatively new one recently added to the list of special fees is indicated by the fact that 15 of the institutions did not collect such a fee in 1915. There were 5 other colleges having a health fee in 1915 that advanced the amount charged in 1928, the increase averaging $2. Three institutions eliminated the fee between 1915 and 1928.

Attention has already been called to the matriculation fee that does not pertain to any specific activity but consists of a fixed charge for entrance. Twenty-six of the colleges charged a matriculation fee in 1928 and in no case was its payment optional. The amount of the fee was $20 in 2 institutions and $10 in 10 others. The lowest matriculation fee was $1. The data presented in the table show that 12 colleges, or almost half of the total charging this fee, made no charge for matriculation in 1915 although such a fee was levied in 1928. In 6 institutions the fee was also increased, between 1915 and 1928, in amounts varying from $1 to $5 while in 6 no advance was made. A gymnasium fee was assessed in 15 institutions in 1928, its payment being required in all instances but 1. The amount of the fee varied from as low as $2 up to $8 in 1928. A comparison between the gymnasium fee in 1928 and 1915 discloses that there were 6 colleges charging the fee in 1928 which did not assess it in 1915, 6 that raised the fee from $1 to $4, 1 institution that reduced the fee from $4 to $3, and 2 others that discontinued it between 1915 and 1928.

Among the other special fees listed is the library fee, which was levied in 14 colleges in 1928. In every case the student was required to pay the fee. The highest library fee charged in any college was $50 and the lowest $1. One institution levied a combination library and laboratory fee amounting to $40. The income from the library fee was paid into the activity in only 5 out of the 14 colleges, being credited to the general institutional funds in the majority. Eight colleges assessed a library fee in 1928 that made no such charge in 1915. In 6 institutions the fee was raised in amounts from $1 to $25 between 1915 and 1928 and in only 1 case was the charge discontinued. For the support of the college paper there were 13 colleges that levied a fee ranging from $1 to $2.50 in 1928. Payment was required in 11 instances while it was optional in 2. In every case the funds collected were paid to the activity to cover costs of operation. The compilation reveals that in 1915 but 2 out of the 13 colleges assessed a fee against students for the maintenance of a college paper so that the charge in 1928 was a new fee in most instances. In addition to the special fees just cited, a number of institutions collect union, class dues or other types, including lecture, association, and regulation fees which will not be discussed in detail. Full information concerning them, however, will be found in the table.

In order to obtain a conception of the total special fees, both optional and required, levied against the students including the increase between 1915 and 1928, data were compiled regarding this point. Of the 41 institutions reporting there were only 11 in which any of the special fees were optional. The total amount of the optional fees assessed in 1928 varies from 36 cents up to $35 as compared with a range of 36 cents up to $10.50 in 1915. With four exceptions optional fees levied in 1928 were not charged in 1915 so that the gain in practically all the colleges was large comprising amounts between $2 and $35. Of far more importance are the total amounts of special fees that the students are required to pay. There was only 1 institution out of the 41 listed that charged no special fees in 1928. In the remainder, the total required special fees varied in amount from as low as $5 to as high as $60. Eight of the institutions levied no required special fees whatever in 1915 with the result that the entire sum assessed in 1928 represented a new charge against the students. Between 1915 and 1928 the total required special fees were advanced from $4 to $44.25 in the different colleges.

The increase in 1 institution was between $40 and $45, in 2 between $35 and $40, in 1 between $30 and $35, in 2 between $25 and $30, in 4 between $20 and $25, in 8 between $15 and $20, in 8 between $10 and $15, in 10 between $5 and $10, and in 3 less than $5.

There were only two colleges that did not increase the total amount of required fees during this period.

The practices covering the assessment of laboratory fees are at wide variance in the different colleges. Because of the inadequate returns, it was difficult to ascertain the exact amounts students were compelled to pay in many cases. In 18 institutions a regular laboratory fee was levied, the funds being used for the purchase of supplies and to defray the operating costs of the laboratories. In 22 other institutions the fee consisted of a breakage deposit for the replacement of destroyed, lost, or damaged equipment, which was refunded to students at the end of the term with proper deductions. Although a number of colleges credited revenues from laboratory fees to the general institutional funds, in most cases they were expended directly for laboratory purposes. The amounts charged by the institutions where a regular laboratory fee was levied ranged from a minimum of $1 to a maximum of $50. In only one case was there found a laboratory fee as large as $50, the others varying from 25 cents to $25. There were 2 institutions with maximum laboratory fees from $20 to $25, 3 from $15 to $20, 3 from $10 to $15, 2 from $5 to $10, and 4 less than $5. Three institutions reported that the fee varied in amount, but no figures were submitted. In the 22 colleges requiring breakage deposits but charging no regular laboratory fee, the amounts ranged from $2 up to $25.

The deposit was $25 in 1 institution, $15 in 1, $10 in 3, $7.50 in 1, $5 in 3, from $5 to $10 in 2, $3 in 1, from $2 to $10 in 2, and from $1 to $4 in 1. Seven of the institutions failed to report on the amount of their laboratory breakage deposits.

Other types of fees found in the institution are late registration, special examination, and change in schedule fees. Although such fees are contingent in character, fairly large incomes are derived from them and the amounts charged in some colleges are high. According to the reports received in the survey, 41 institutions assessed a late registration fee in 1928. The highest found was $10 levied in one institution while another assessed a fee with a maximum of $10 and a minimum of $1. In 13 colleges the amount of the late registration fee was $5; in 1 from $5 to 50 cents; in 5, $3; in 1 from $3 to $1; in 12, $2; and in 3, $1. Three institutions have adopted the policy of charging the student a fixed amount for each day that he is late in registering. In one institution the charge was $1 per day, in a second $2 per day, and in a third $5 per day. Considering that the failure of students to register on time is frequently due to unavoidable circumstances, it would seem that some of the fees just listed are excessive in amount. Special examination fees were found in 29 of

the land-grant colleges in 1928, the amounts varying from $5 to 50 cents. The fee charged was $5 in 7 cases, $3 in 2, $2.50 in 1, $2 in 10, $1 in 7, and 50 cents in 2. It is obvious that rather high amounts are levied against the student for a special examination at some of the institutions. A fee covering a change in the schedule of courses was assessed in 18 out of the 44 colleges filing returns, the highest being $5 and the lowest 50 cents. The charge was $5 in the case of only one institution. Of the remainder, the amount of the fee for change of courses was $2 in 1 college, $1 in 14, and 50 cents in 2.

The policy of assessing a blanket fee covering the entire cost of attendance by term or semester has been adopted by eight institutions. This type of fee was generally uniform in each of the major divisions or departments, although in several cases the amounts differed. In two colleges the blanket fee was the same throughout the four years of attendance, while in six others it varied for the different years. The fee, according to the reports submitted in the survey, ranged in amount from as high as $115 to as low as $26 in 1928. In 1 institution the total blanket fee was $115; in 1, $100; in 1, $60; in 1, $50; in 1, $40; in 2, $26; while 1 college failed to furnish information covering the amount of the charge.

In the appraisal of student fees up to this point, the discussion has been confined to outlining the various classes of fees, the amount of each specific fee, and the increase in the rate charged between 1915 and 1928. While such data provide information on the practice existing in the land-grant colleges in the assessment of student fees, a more valuable criterion of the situation is found in a comparison of the actual revenues derived from student fees. With the tremendous increase in income from student fees, it is evident that they have become an important source of support to the institutions, a matter of vast significance in the organization of their educational programs and the conduct of their financial affairs. Revenues of the land-grant colleges from student fees have been compiled for 1915 and 1928 with the amounts of increase and are presented in Table 19.

TABLE 19.—*Increase in revenues from student fees between 1915 and 1928 in land-grant institutions*

Institution	Revenues from student fees for 1915	Revenues from student fees for 1928	Gain in 1928 over 1915
1	2	3	4
Alabama Polytechnic Institute	$12,889	$138,888	$125,999
Alaska Agricultural College and School of Mines	(1)	967	967
University of Arizona	4,268	103,609	99,341
University of Arkansas	15,512	97,415	81,903
University of California	292,102	1,591,736	1,209,634
Colorado Agricultural College	9,684	43,046	33,362
Connecticut Agricultural College	15,715	91,615	75,900
University of Delaware	7,494	74,943	67,449
University of Florida	4,102	130,864	126,762
Georgia State College of Agriculture	5,310	64,017	58,707
University of Hawaii	137	38,896	38,759
University of Idaho	989	46,787	45,795
University of Illinois	236,151	850,748	614,597
Purdue University	83,467	319,141	235,674
Iowa State College	78,838	387,219	308,381
Kansas State Agricultural College	38,035	263,192	225,157
University of Kentucky	13,562	172,127	159,565
Louisiana State University	13,492	100,220	86,728
University of Maine	56,358	189,414	133,056
University of Maryland	(1)	577,276	577,276
Massachusetts Agricultural College	8,129	58,264	50,135
Massachusetts Institute of Technology	429,964	897,262	467,298
Michigan State College	36,434	281,140	244,706
University of Minnesota	248,719	1,045,349	796,630
Mississippi Agricultural and Mechanical College	13,277	70,724	57,447
University of Missouri	114,725	447,079	332,354
Montana State College	9,027	38,299	29,272
University of Nebraska	85,214	479,074	393,860
University of Nevada	3,573	45,542	41,969
University of New Hampshire	13,586	183,902	170,316
Rutgers University	30,783	643,156	612,373
New Mexico College of Agriculture and Mechanic Arts	1,839	7,576	5,737
Cornell University	622,575	1,438,304	815,729
North Carolina State College	24,402	140,142	115,740
North Dakota Agricultural College	15,651	45,505	29,854
Ohio State University	222,475	717,080	494,605
Oklahoma Agricultural and Mechanical College	5,300	48,134	42,834
Oregon Agricultural College	32,565	268,946	236,381
Pennsylvania State College	69,823	789,244	710,421
University of Porto Rico	2,168	41,249	39,081
Rhode Island State College	5,737	13,274	7,537
Clemson Agricultural College	5,233	25,233	20,000
South Dakota State College	13,207	68,184	54,977
University of Tennessee	57,205	246,296	289,091
Agricultural and Mechanical College of Texas	3,627	85,401	81,774
Agricultural College of Utah	10,019	59,930	49,911
University of Vermont	51,563	352,171	300,608
Virginia Agricultural and Mechanical College	27,111	80,413	53,302
State College of Washington	8,877	134,550	125,673
West Virginia University	27,014	253,405	226,391
University of Wisconsin	452,090	1,041,576	589,486
University of Wyoming	5,021	60,039	55,018
Total	3,545,038	15,388,563	11,843,525

[1] Institution as such was not in existence.

The total revenues from student fees in 1915 amounted to $3,545,038. In 1928 the revenues were $15,388,563, representing an increase of $11,843,525, or 334 per cent. Every institution increased

its revenues from student fees and the gains recorded in many individual colleges were greatly in excess of the percentage of increase just given. Of the entire list there were 28 colleges or more than a majority that made gains in amounts ranging from $100,000 up to $1,200,000. The largest gain in revenues from student fees was made by the University of California, the amount being $1,209,634 between 1915 and 1928. There were seven other institutions, most of which were the larger State universities, that increased their receipts between $577,276 and $815,729.

The increases in 2 colleges were between $450,000 and $500,000, in 2 between $350,000 and $400,000, in 3 between $300,000 and $350,000, in 1 between $250,000 and $300,000, in 5 between $200,000 and $250,000, in 2 between $150,000 and $200,000, in 5 between $100,000 and $150,000, in 12 between $50,000 and $100,000, and in 12 less than $50,000.

The enormous advances in revenues from student fees are generally attributed to heavy gains in student enrollment. In view of the fact that the number of fees assessed has been considerably multiplied and the rates of the different fees raised almost universally, it is evident that a large proportion of the increases is due to the adoption of definite financial policies designed to secure additional income for the institutions from this source.

Considering the large annual revenues from student fees, the variety of fees assessed, and great number of students paying them, their collection involves a complicated process. It is found that in five of the land-grant institutions the fees are collected annually. The students of 23 colleges pay the fees each semester and in 14 they are collected every quarter. The chief business officer should be responsible for the collection of the fees. This is the case in all the land-grant colleges with one exception where the fees are paid direct to the registrar. Another arrangement that has the effect of materially reducing the work of collecting the fees is to permit registration and payment prior to the fixed day of registration either by mail or in person. The returns show that 10 institutions follow the plan of allowing payment of fees by mail and that 11 allow their payment in person prior to the date of registration. The most efficacious method of enforcing payment is to deny the privilege of class attendance. Students are permitted to defer payment of their fees or a portion of them under certain circumstances in 23 institutions.

That a rather strict policy has been adopted generally in the land-grant college group to assure the complete collection of fees assessed against the students is exemplified by the limited number of exemptions from their payment. Thirty-one institutions allow no exemptions whatever. In the other 21 colleges the exemptions are

so restricted in their application that comparatively few students profit by them. On the basis of the data submitted, it is found that either members of the faculty or their families are exempted from payment of student fees in 14 institutions; students in the graduate school in 2; ex-service men in 3; and high-school honor graduates in 2. The governing board has authority to exempt a student from paying fees in the case of another college, but specific approval is necessary and a sufficiently sound reason must be advanced. Still another institution reports that members of the instructional staff are relieved of laboratory fees in their own departments.

One of the perplexing problems connected with the collection of tuition assessed in the colleges is the determination of whether the student is a resident or nonresident of the State. As already shown, tuition fees levied against nonresident students are far higher than the charge against resident students. It is necessary, therefore, that a definite regulation be adopted, otherwise nonresident students will enjoy the same rate of tuition as resident students. In practically all the institutions charging tuition such a regulation is in force, but the definitions of the nonresident student differ widely. Where the student is a minor, 6 colleges provide that the parents of the student must be residents of the State at the time of registration if he is to be permitted to pay a resident tuition; 10 stipulate that his parents must have lived within the State for 12 consecutive months prior to registration; 1 fixes the time limit of the residence of parents at six months; and 6 decide the question on the voting place of the parents at the previous election. The determination of a nonresident student, who is of age, is based on the place of his registration as a voter in 9 cases, whether he had lived within the State for a year in 10 and for six months in 1, and whether he has been a voter of the State and self-supporting in 1. A number of colleges in defining a nonresident student make no discrimination on the question of his minority. There are 12 institutions which provide that the parents or the guardian of a student, irrespective of age, must be legal residents of the State if he is to pay the resident tuition fee. In another instance it is required that the parents of the student actually be taxpayers of the State.

The student fees after being collected are retained by the institution or deposited in the State treasury. In either case they should be available for use in defraying current expenses. In 23 institutions the yield from student fees is kept by the college and deposited in the institutional treasury. In 20 other cases the moneys are deposited with the State treasury as collected. One college did not report on this point.

Trust Funds

The administration of trust funds has developed into an important responsibility in the financial management of the land-grant colleges. In their early history the institutions were in the experimental stage and doubt existed as to their permanence. Under these circumstances it was natural that they were the recipients of few private donations.

With their recent tremendous expansion, with the growth of their educational establishments, and with the large gains in their student bodies, a number of the land-grant colleges are now regarded as the leading higher educational institutions of the country. Public confidence has been created in them and in their ability to administer private benefactions with full assurance of permanence and satisfaction. The result has been a steady increase in gifts and donations from private sources for their maintenance and support.

Trust funds administered by the institutions consist of four general classes—gifts for current expenses, gifts for capital outlays, permanent endowments, and annuity funds. With the exception of annuity funds, data on the amounts of the various private gifts, and the values of permanent endowments have been presented in detail by institutions in the previous discussions dealing with income, capital outlays, and properties. Annuity funds are trust funds, the complete ownership of which will come to the institution at a future time, the income in the meantime being paid to a beneficiary designated by the donor. According to the reports received there are eight land-grant colleges having such funds, their total estimated value being $1,309,000. Although the number is limited in most of the individual institutions, one college reports as many as 41 different annuity funds.

Control of the trust funds including permanent endowments is vested in the governing bodies of 21 of the colleges. In 10 others the State governments through their constituted officers administer them. Where the boards of trustees exercise responsibility, a committee of the board is especially empowered to invest the funds in 12 cases, the chief business officer is delegated to handle the investments with the approval of the board in 5, and the board assumes complete jurisdiction in 4. Where the State governments have retained control of the trust funds, the State treasurer is charged with the duty of administering them in 6 institutions, the State legislature in 2, the commissioner of schools and public lands in 1, and the State superintendent of public investments in 1.

In the administration of trust funds, particularly permanent endowments, the most vital problem is the sound and advantageous investment of the funds. High-class and long-time securities are preferable to any other type. In the case of a number of the institutions, however, the authorities administering the endowments, whether they be officers of the colleges or State officials are restricted by State laws in the investments and, therefore, have no discretion. According to the reports received, this situation is applicable to eight colleges. The law of one State limits the investment of permanent endowment funds to United States Government bonds, of another to municipal bonds, of a third to Federal and State bonds, of a fourth to municipal and Government bonds, of a fifth to first mortgages and bonds, of a sixth to first mortgages on farm lands, of a seventh to municipal school district, county, or State bonds, and of the eighth to first mortgages on farm lands or State, county, school, and municipal bonds. In 13 other States no restrictions whatever are imposed by statute on the administrators and they are at liberty to invest the funds in such securities as they may select. Eight colleges failed to report on whether restrictions were placed by law on the investment of their permanent endowments. The classes of securities in which the trust funds and permanent endowments are generally invested include mortgages, bonds, stocks, and real estate, although a few colleges have made investments in certificates of deposit, cash bank deposits, and tax certificates. One institution reported that a minor part of its permanent endowment was placed out at call loan. A tabulation of the investment of the trust funds and permanent endowments showing percentages in the different classes of securities is presented in Table 20. The data are based on reports of the colleges.

TABLE 20.—*Investment of permanent endowments and trust funds of land-grant colleges showing percentages in different classes of securities*

Institution	Per cent in—				
	Mortgages	Bonds	Stocks	Real estate	Others
1	2	3	4	5	6
University of Arizona		100			
Colorado Agricultural College		100			
University of Florida		100			
Georgia State College of Agriculture		77	2		21
University of Hawaii	11	82	7		
University of Idaho	28	50		2	20
University of Illinois	1.7	54	40		4.6
Iowa State College	86	14			
Kansas State Agricultural College		100			
University of Kentucky		100			
Massachusetts Institute of Technology	.2	71	25	2	
Michigan State College		100			
University of Minnesota	.2	65	3.8	31	
Montana State College	14	85			1
University of Nebraska	25	75			
University of New Hampshire		30.5	53.1		16.4
Rutgers University	16.1	46.3	24	4.7	8.9
Cornell University	14.7	51.6	33.6	.1	
North Dakota Agricultural College	52	15		25	8
Ohio State University	14.7	.2			85.1
Pennsylvania State College	.7	95.8	3.5		
South Dakota State College	100				
University of Tennessee		100			
Agricultural and Mechanical College of Texas		100			
University of Vermont	14.7	26.8	10.9	33.3	14.3
State College of Washington		100			
University of Wisconsin	97	3			
University of Wyoming		100			

There are 16 colleges with investments in mortgages. Of this number, one institution has all of its trust funds invested in mortgages, another 97 per cent, a third 86 per cent, and a fourth 52 per cent. The proportion in the remainder ranges from 28 to 0.2 per cent. By far the great majority of the funds have been invested in bonds, 20 institutions having from 100 to 50 per cent and 8 less than 50 per cent. The returns show 10 colleges with 100 per cent of their trust funds invested in bonds, 3 from 90 to 100 per cent, 2 from 80 to 90 per cent, 3 from 70 to 80 per cent, 1 from 60 to 70 per cent, and 3 from 50 to 60 per cent. The institutions with smaller proportions of bond investments include 1 with 46.3 per cent, 1 with 30.5 per cent, 1 with 26.8 per cent, 2 between 14 and 15 per cent, and 2 less than 5 per cent. Only 10 colleges have invested part of their trust funds in stocks, none of which exceeds a proportion of 53.1 per cent found in one instance. The others vary from 40 per cent to 2 per cent, there being 2 with percentages between 30 and 40, 1 between 20 and 30, 1 between 10 and 20, and 4 less than

10. Investments of trust funds in real estate, due in some cases to the fact that they were received in that form from donors, are found in 7 institutions, the proportions being generally small. The percentage in 2 colleges was between 30 and 40, in 1 between 20 and 30, and in 4 less than 10. Trust funds in nine cases have been invested in other revenue-producing sources, such as certificates of deposit, cash bank deposits, tax certificates, and call loans. One institution has placed 85.1 per cent in this class of investment and 2 others between 20 and 21 per cent, while the proportions of the 6 others vary from 16.4 down to 1 per cent.

Notwithstanding the increase in the number of donations and private gifts made to the land-grant colleges from private sources for current expenses, capital outlays, trust funds, and permanent endowments, few of the land-grant colleges have formulated well-organized plans for their encouragement. Six colleges report that regular campaigns are conducted among their alumni to secure gifts while three others concentrate their efforts on prominent and leading citizens. Two institutions devote their energies to securing gifts from organizations.

Rotary or Revolving Funds

The financial and business operation of certain self-supporting enterprises is greatly facilitated by means of rotary or revolving funds. The cash income of such enterprises should be sufficient to defray the expense of maintenance and operation. In the event of a net profit accruing, the surplus should either be used to extend the plant and improve the service or be turned into the institutional funds as a resource in the annual budget. The different types of enterprises conducted through rotary or revolving funds are residence and dining halls, intercollegiate athletics, hospitals and infirmaries, book stores, laundries, printing shops, and similar services, which are discussed in detail in another part of the report.

Of the 44 colleges submitting reports, rotary or revolving funds are operated in 30. Fourteen institutions report that none is conducted. The establishment of rotary or revolving funds has been authorized by the State legislature in the case of 8 institutions and by action of the governing bodies in 22. General supervision and control over them should be vested in the chief business officer. This practice is followed in 18 cases. The governing board, however, exercises direct administrative supervision in one college and the president in five. Six colleges did not report on the officer controlling rotary or revolving funds.

If this type of enterprises is to be operated, it is important that the handling of business and financial details should not be segregated from the regular institutional organization. Collections, purchasing, payment of bills, and accounting should be handled through the regular channels. Receipts should be deposited in the institutional treasury. It is found that the funds are managed on this basis in most of the colleges, although in eight cases the receipts are deposited with the State treasurer and in two others with a local bank.

Chapter IV.—Business Management, Financial Methods, and Accounting Systems

During the past 15 years business management in higher education has made rapid progress. Educational programs are generally expressed in a financial way in an annual internal budget; the economies and financial control of centralized purchasing are becoming generally realized; and accounting records of assets, liabilities, income, and expenditures are being devised and installed. These instruments of management are not only present in form in many of the land-grant institutions but they are used to further the educational program.

The budget plan, the plan of centralized purchasing, and the system of accounting have been developed, however, not so much "according to the needs of the particular institution" as according to the views of the particular individual or individuals responsible for them. There may not exist one best way, but the present diversity of practice in these fields can not be defended on the basis of particular institutional needs or on the basis of the best methods. Whether they can or not, the fact remains that the many different accounting methods, systems, accounts, and reports make an intelligent comparison of the activities of the several institutions a practical impossibility. Comparative statistical data of teaching costs, for example, compiled from the present accounts of these institutions would be without significance and even harmful in the hands of individuals ignorant of the dissimilarity of practice.

It is for the reason cited that this report will be confined largely to a discussion of the better practices in business organization and methods revealed by the survey. This discussion will cover the preparation and administration of the annual internal budget, the accounting system in all its phases, the necessity of audits both external and internal, the requirements of a good financial report, and the advantages of centralized purchasing, of a central employment bureau, and of controlling property by annual inventories.

Annual Budget

The annual institutional budget has as its objective a distribution of available funds designed to further in an equitable and orderly

manner the educational program of the year. Its preparation requires an examination of past expenditures, revision in the light of the program for the new year, and usually some redistribution between departments to conform with the relative tasks to be performed by them. A proper administration of the budget which has as its basic principle that no obligations may be incurred against institutional funds without prior administrative authority renders unlikely the closing of the year with a deficit. Too many budgets are painstakingly prepared, only to be forgotten soon after the beginning of the year. A budget prepared but not carefully followed might almost as well have not been prepared.

If satisfactory results are to be expected the budget must include all activities the funds of which are handled through institutional channels. In other words, it is not sufficient to budget merely the academic activities or that part which is paid from State or Federal funds. All funds, including service enterprises and trust funds, should appear in the financial program. The governing board and the institutional administration should have a comprehensive program for every phase of activity to be undertaken. Much valuable time must be devoted to the preparation of the budget, but time thus spent is well utilized if the work is thoroughly done.

The budget should be divided according to the major divisions of the institution. These are commonly administration, library, instruction and research, physical plant, service enterprises, and trust funds. The budget should further follow the organization lines of the institution. Administration should be divided by the budget into its several offices and departments; instruction and research should be divided into the several colleges and the colleges into departments; and the physical plant should be divided into administration, maintenance of buildings, maintenance of grounds, heating-plant operation, telephone service, watchman service and other major activities. Some institutions even budget maintenance of buildings by the separate buildings. The several trust funds should be separately shown and the service enterprises should be individually listed.

It thus appears that, although the budget may summarize by colleges and major divisions, the budget unit is the department, office, trust fund, enterprise, and the like. The next question is what detail should appear for each department or office. More than half, usually about 60 per cent, of the expenditures for higher education goes for salaries, regular and temporary. Salaries, therefore, should be given prominent position. It is customary to list under each department the individual positions and such information relative to each as name of incumbent, length and class of appointment, perquisites, and vacation, if any, and the total salary distributed to the

several funds if more than one. Temporary assistance is usually allotted in lump sum, there being separate allotments for research, instructional, clerical, or service staff temporary help. Funds allotted the departments for supplies and expense may be in lump sum or subdivided and may be combined with those for equipment depending on the size of the funds allotted. Items of expense or equipment which are unusual and will not be needed for the following year should be so set out that they will not be overlooked when the next budget is prepared. This applies particularly to extraordinary repairs and capital additions in the physical-plant budget.

So far as it is possible to determine all income of instructional and research departments should be estimated and included in the budget. A budget without these departmental sources of income not only is incomplete but fails to specify how such income shall be spent. The budget of a department based on both general funds and its own income should indicate the amount from each source and how it is to be spent. Service enterprises operating on their own income alone should be budgeted and all income expected need not be allotted for expenditure. It may be desirable to build a reserve or start another enterprise of the same general character.

Reports disclose that 40 out of the 42 institutions reporting operate on an internal budget. The institutions which have not adopted a budget system are the Louisiana State University and the Rhode Island State College. Three institutions operate on a biennial instead of an annual budget.

Since the general set-up of a budget indicates somewhat the plan of operation and gives some idea whether the budget system is well divided and well administered, an effort was made to secure from each institution an outline of its budget classifications. While many of the segregations are similar, the reports indicate a wide disparity in the items into which the budget is divided. This is perhaps one reason for the dissimilarity of practices and confusion of methods in land-grant college financial administration.

It was found that of the 40 institutions operating on an internal budget, there are only 27 which use the division or heading of personal service in segregating their expenditures. The remaining universities and colleges have substituted such terms as administration, salaries and wages, general instruction, academic, instructional, and research, which either do not include all expenditures for personal service or comprise, in some instances, items of expense not generally classified as personal service. In the case of the division of operation and maintenance of the physical plant, more uniformity is found, 34 institutions segregating expenditures under this heading in their budgets. The colleges adopting a different classification

place expenditures for the maintenance of physical plant under such items as repairs and replacements, upkeep, wages and operation, labor, and similar divisions. There are 29 institutions which have adopted "current expenses" as a division in their budget while in other cases expenditures of this character are classified under a variety of headings, including supplies, general expense, sundry, and miscellany.

Similarly it is found that the budget of but 30 institutions make a distinct segregation of the item of "equipment," the expenditures made by the remainder being placed under "academic expenses" in some instances, under "instructional costs" in others, and under "upkeep of plant" in several additional cases. As a general service branch of the institution it is important that the library, including expenditures for books and periodicals, appear as a separate department in the budget. Thirty-two institutions have segregated the library under a single general item. In other cases, the library expenditures are found among other classifications of expenditures including "academic salaries and expenses," "instructions and research." "Capital outlay" is given as a classification heading in the budgets of 25 institutions of which 20 have subclassifications for lands, 25 for buildings, and 12 for other capital outlays, such as roads and similar major improvements. Capital outlay is omitted from some of the budgets because these expenditures represent special appropriations made by the State legislature.

It is evident from this brief presentation that the budgets of many of the land-grant colleges are at wide variance. This is due chiefly to the failure of the administration to harmonize budget classifications with accounting classifications. The result is that two systems of handling financial records are operated in the same institution, a situation causing duplication of effort, wasted energy, and unnecessary labor. Another disadvantage is the fact that any attempt to collect accurate data on the cost of different functions and activities from the entire group of institutions is a futile undertaking. The overlapping of items of expenditures in the various accounts prevents any comprehensive compilation. Notwithstanding the situation just described, the internal operations of the budget have been placed on a satisfactory basis in many institutions. The organizations submitting estimates and receiving appropriations under the budget are made up of functional units in most of the institutions, such as the college, school, experiment station, extension service, or other coordinate service.

The annual budget, of course, coincides with the fiscal year but the land-grant institutions do not have a uniform fiscal year. This difference is primarily due to the varied practice of States for the

land-grant institution must follow the State fiscal year. There are 27 institutions with the fiscal year beginning July 1; 2, September 1; 2, October 1; 1, June 1; 1, March 1; and 1 December 1. The University of Illinois with a fiscal year beginning July 1, makes its expense budget become effective July 1 and the salary budget on September 1. The need for such an extraordinary budget plan is difficult to comprehend. Of the colleges operating their budgets on a biennal basis, two begin on January 1 and one on July 1. One university reported that its budget becomes effective when the money is appropriated.

The date of completion of the annual budget is important. In order that the new budget may take full advantage of the current year's experience it is desirable that the date of its completion be as near the end of the current year as possible. It must, however, be early enough to permit employment of teachers for the next academic year. Institutions with a fiscal year beginning July 1 usually have their budgets completed by June 1 and are filling vacancies for the coming fall. It therefore behooves institutions with fiscal years beginning later than July 1 to complete their budgets more than a month before the beginning of their fiscal years if they expect to compete on even terms for the available teaching talent. Among the land-grant institutions, 10 adopt their budgets one month before the beginning of their fiscal years, 2 one and one-half months before, 11 two months, 1 two and one-half months, 11 three months, 1 four months, and 1 six months. It is apparent that some are completing too early and some too late.

The first step in the making of a budget is the determination of the available income. The land-grant colleges receive annual or biennial appropriations for their support from State legislatures, and there are other sources of income, such as student fees, departmental sales, and service enterprise and trust fund income, which are not definitely known in advance. It is necessary, therefore, that an estimate be made of this class of income. Much of the success of budget administration depends upon the accuracy with which this income has been estimated. Because of his complete knowledge of the financial affairs of the institution and his thorough acquaintance with every detail of business operation, the business officer is, undoubtedly, best qualified to make this estimate. An examination of the returns on this subject reveals the fact that the chief business officer makes the estimate in 26 universities and colleges, but in the remainder this function has been assigned to other officials. The president determines the budget income in six institutions. In one university it is estimated jointly by the president, business manager, and the State tax commissioner. Another institution reported that

the income is determined by the accountant and in the case of another the heads of departments estimate the income from revolving funds, which added to the State appropriations make up the total budget income. Four universities made returns to the effect that the income is determined entirely by legislative appropriations, an unusual situation in view of the fact that institutional revenues should not be omitted from consideration in any well-organized budget system. One institution supported by a millage tax bases its budget income on an estimate of the previous year's receipts from this source.

The procedure followed in the compilation of the budget is of importance if the administration of the budget is to be successful. The department heads and deans who must operate under the budget and the business officer who must administer it should play important parts in its preparation. The department head should initiate his own budget requests and the dean should coordinate and revise the budgets of his departments so that the whole presents a well-balanced financial plan for the operation of his college. The departmental budgets revised and coordinated by the dean and representing the best judgment of all concerned should be forwarded to the business office. The business office and the president's office should, after consultation with the several deans, mold the requests into a financial program for the institution. In this review of college and departmental requests, the president's office should concern itself chiefly with the instructional salaries and the business office with the clerical staff and allotments for supplies, expense, and equipment.

Reports received by the survey indicate that the heads of the departments in 30 institutions follow the logical procedure of submitting their budget estimates to the deans or directors of the divisional organizations. But in two instances, the Connecticut Agricultural College and the University of Vermont, the unusual procedure is found of having the department heads present the estimates direct to the business officer, the deans or directors apparently being given no voice in the preparation of the budgets for their divisions. A more anomalous situation is disclosed in six other universities and colleges where the budget estimates of the heads of departments are submitted to the chief executive, neither the deans nor the business officer having an opportunity to participate in their compilation. The institutions adopting this procedure are the Georgia State Agricultural College, University of Hawaii, Massachusetts Agricultural College, Massachusetts Institute of Technology, Mississippi Agricultural and Mechanical College, and Montana State College.

Various other inconsistencies are likewise found in the handling of the budget estimates in the colleges after they have reached the offices of the deans or directors from the department heads. The

returns reveal that in 17 institutions the deans submit their budget estimates to the business officers, while in 20 other cases they are sent to the president without the business officer reviewing them. In a number of these cases, however, the advantages of a review by the business officer is not wholly overlooked, since the president forwards the estimates submitted to him by the deans and directors back to the business officer for preparation of the budget. That this is the case is evidenced by the fact that the reports show that in 33 institutions the business officer completes the budget and presents it to the chief executive. In the final step the president submits the budget to the entire governing body in 21 institutions and to a committee of the governing board in 15. No information was furnished regarding the lines of procedure for handling the budget by four institutions.

An advantageous arrangement in budget-making is to make tentative lump-sum allotments to the various divisional organizations of the institution before the detailed work on the budget is started. By this system deans and directors are given a conception of the probable appropriations for their divisions and are enabled to compile their total estimates to correspond in a measure with them. Such tentative allotments avoid the necessity of wholesale slashing and cutting down of divisional estimates in the final completion of the budget. It is important in this connection that this tentative allotment be based on known needs and be not an allocation of new additional funds on the same relative basis as old funds. Reports of the universities and colleges indicate that in only 15 institutions is the plan followed. Of this number the tentative lump-sum allotments are made by the president in 14 and by the governing board in 1. All of the land-grant institutions might simplify their budget preparation difficulties by this device.

One of the major questions involved in the preparation of the budget is the determination of the validity of requests for additional personnel and salary increases. The survey made an attempt to ascertain the methods employed by the different institutions in this phase of budget-making. In the presentation of requests for additional personnel, validity is determined in 11 institutions on the basis of the reports of deans, heads of departments, and other organization chiefs. A different situation exists in the remaining institutions. Their returns show that such requests must be supported by statistical and detailed data on increased enrollment, teaching loads and schedules, and additional service. There are 13 institutions which base the validity of the requests for additional personnel exclusively on increased enrollment or registration, 10 on teaching loads and schedules of the teaching staff, and 3 on additional service proposed for the division. It is evident that all these

methods have merit. If increases are to be made in the personnel they should be based on specific and detailed data showing larger registration of students, increased teaching loads, new courses of instruction, and new research projects, rather than on general and oftentimes prejudiced reports of organization heads.

Considerable difficulty was encountered in analyzing the information submitted concerning the methods of determining the validity of budget requests for increases in salaries. In some cases the returns were confusing. The general practice in 14 institutions seems to be to base justifications for salary increases upon direct recommendations of the deans and departments heads. The budgets of 16 other universities and colleges require evidence of effective past service, of improved teaching ability, and increased efficiency. Service records covering previous training, experience, and other qualifications are also employed. Validity of requests for salary increases in three institutions is determined entirely by definite reports of teaching efficiency while in four others the salaries paid the same rank and grade in other institutions has an important bearing. In a number of universities and colleges there are fixed salary scales, which eliminate the necessity of supporting or justifying salary increases in budget estimates. One institution reported that its retrenchment policy precluded any salary increases.

A budget consists of estimates of income and estimates of expenditures and since the estimated income may not be realized and the estimates of expenditures may not be adequate for some unusual expense, some percentage of the income should be set aside in an institutional reserve for emergency purposes. Twenty-one of the 40 land-grant colleges operating on a budget system provide a reserve sum. In the others no provision is regularly made for emergency needs. It is the practice of some institutions to set aside a fixed sum as an emergency fund in the budget, one reporting that $10,000 is reserved, another $25,000, a third from $20,000 to $40,000, and a fourth $100,000. In the remainder a certain percentage of the entire available income is set aside. A number of institutions failed to specify the exact percentages, but in the 12 reporting the percentages range from 1 to 6 in all the cases except one which maintains a budget reserve of 20 per cent, an excessively high percentage difficult to justify.

No general changes should be made in allotments after the budget is officially adopted although some flexibility is necessary and minor changes within departments should be permitted with the approval of the business officer and in some cases of the president. A review of the returns indicates that most of the institutions have adopted stringent regulations governing changes in the budget. One institu-

tion lays down these rules relative to changes or transfers in the budget: Transfers may be made between instructional pay-roll items; between labor or service pay-roll items; between clerical pay-roll items; between supplies, expense, and equipment budgets and labor and clerical pay-roll items where work, budgeted for contract, is to be done by university employees or vice versa; and from supplies and expense budgets to equipment budgets. No other transfers are allowed except under unusual circumstances and then only on receipt of full information of the necessity. Two universities reported that no changes are permitted. Another college sanctions changes only in case of errors in figures. At one institution the approval of the State comptroller is required to change the budget while the authority of the governor must be obtained to revise certain items in the case of a fourth university. In the others the authority for changes in the budget is vested in the board of trustees at 15 institutions, in a committee of the governing body at 8, and in the president at 9. There are three universities which permit the chief business officer to make adjustments in budget expenditures for equipment and current expenses.

Due to resignations, appointments, changes in titles and salaries of members of the staff occurring during the course of a year, a limited amount of flexibility in the budget is essential. Such changes, however, are of a routine nature and little difficulty should be encountered in handling them without any radical revisions of the budget. The returns show that there were 1,428 resignations, 2,970 appointments, 666 changes in title, and 2,654 salary changes, making a total of 7,718 during the fiscal year of 1928 in 27 of the institutions. The other 13 universities and colleges reported that no changes of this character were recorded. Institutions having the largest number were the University of Minnesota with 2,753, Ohio State with 1,173, and Iowa State College with 621. The large number of changes at Minnesota is explained as due to the fact that it budgets individual positions and budgets supplies closely, and consequently this number of transfers represents not more major changes but a more careful budget administration. The Connecticut Agricultural college and the Montana State College had the smallest number of budget changes, the amount being six each.

Accounting

Cognizance of the type of organization to be served is essential in the development of every system of accounting. The accounting system of the land-grant institution, therefore, must be planned to conform to its particular nature, to its objectives, and to the scope of

its activities. Being publicly supported, the land-grant institution is necessarily a trusteeship. Its funds must be accounted for in accordance with their purposes and limitations. It is not concerned in the accumulation of profits, such as a private business enterprise, but must limit its expenditures to its available resources. To accomplish this result, budgetary accounts must be maintained.

Because of the organization of land-grant institutions into major divisions, different subject-matter departments, and other functional services, an adequate system must also include a wide variety of accounts and funds. Sufficient classification must be provided for the entry of a multitude of separate transactions. Several institutions reported that they have adopted a simple accounting system, but the very nature of the higher educational institution, the wide scope of its activities, and the complicated business procedures make it inevitable that the financial recording shall be more or less involved. Too much simplicity is certain to result in incompleteness and inefficiency. The fundamentals of an adequate accounting system for the land-grant college may be summarized as follows:

A general ledger control of all accounts and transactions.

The general ledger should be subdivided into separately balanced groups of accounts for funds and also of accounts distinct in type, such as "current funds," "endowment funds," and "plant assets and liabilities."

Budgetary accounts for both income and expenditures with general ledger control, the accounts taking the form of "estimated income" and "appropriation accounts."

Entry of all obligations when made, whether in the form of orders or other obligations, these transactions to be entered as encumbrances against appropriations.

Classification of income or receipts by funds and source.

Classification of expenditures by fund, department, activity, character, and object.

General ledger control accounts of all property values to be supported by detailed perpetual inventories.

Suitable accounting of all trust funds showing at all times their indivudual identity and position.

The institutions were requested to submit a succinct outline of their accounting systems. The returns in most instances were unsatisfactory, making it difficult to ascertain whether all of the essentials just presented are included in their systems. Thirteen of the colleges failed to submit outlines. One university reported that its accounting system is not organized and another that it is a part of the State accounting system. The outlines of 21 institutions showed that a general ledger control of all accounts and transactions is maintained. Twenty of the institutions reported that their general ledger is subdivided into separately balanced groups of accounts of funds and also of accounts distinct in type. There are 22 institutions where the

outline indicates that budgetary accounts for both income and expenditure with general ledger control are kept and 22 where all obligations, whether in the form of orders or contracts, are entered as encumbrances against divisional or departmental appropriations. The accounting systems of only 13 institutions make provisions for accounts covering trust and endowment funds, the remainder apparently having no such funds.

Whether adequate classifications to show income, expenditures, and property values are included in the accounting systems of the universities and colleges could not be learned from the outlines submitted because of their incompleteness. The Carnegie Foundation for the Advancement of Teaching conducted a study for the improvement of accounting methods in higher educational institutions in 1910, however, and compiled forms necessitating the keeping of accounts and books according to specified classifications covering income, expenditures, and property values. Returns on the use of the so-called "Carnegie forms" show that only 11 land-grant colleges have adopted them, either wholly or in part. It is evident, therefore, that uniformity is generally lacking in the practices in use. That a large number of the institutions are able to furnish detailed information regarding income and expenditure notwithstanding the absence of uniformity as between institutions is disclosed by the returns in another part of the report.

The accounts covering the income of land-grant colleges should be segregated under six general headings—Federal, State, student fees, institutional activities, gifts, and earnings of funds. Each of these items should be further subdivided on the basis of specific sources from which the income is derived or specific purposess for which it is available. As a criterion of whether such accounts are kept, actual figures on the income classified according to these general headings were requested from the institutions for a series of specified years. Out of the 44 universities and colleges making returns, 29 were able to report their income for 1910, 34 for 1915, 36 for 1920, 39 for 1925, and 40 for 1928. The institutions unable to supply their income figures under these general items in the various years explained in most instances that the data were not available. Two universities made no report on any of the headings. Further figures on the subdivisions of income were so confused that it was not feasible to make an appraisal of whether detailed classifications are utilized in many of the institutions. In the case of the general item of institutional income from State appropriations subdivided into the items of operating expenses, including salaries, equipment and supplies, and capital outlays, only 32 universities and colleges were able to supply the figures in segregated form.

Similarly, an appraisal was made of the classifications and headings under which the different items of expenditure are kept by the different institutions. As already indicated, an essential to an adequate and complete system is that the expenditures be divided by fund, department, activity, character, and object. Many of the universities and colleges have installed systems covering a part of these items, but in only a limited number of cases are all the classifications included. The classification of expenditures should further provide for a variety of subdivisions. In the survey blanks were presented a series of subdivisions which included administration; departments of instruction; library; research and bureaus; physical plant; agricultural extension; general extension; agricultural experiment station; engineering experiment station; dormitories and dining halls; hospitals, infirmaries, and student health; scholarships, student aid, and prizes; service enterprises; athletics; lands; new buildings; additions to buildings; other major capital outlay items; and miscellaneous expenditures. To obtain a conception of the adequacy of the accounting systems, the institutions were asked to furnish figures under the different headings for five designated years. The figures were supplied for each separate item by 19 institutions for 1910, by 24 for 1915, by 30 for 1920, by 35 for 1925, and by 37 for 1928. The question of whether general ledger control of all property values supported by detailed perpetual inventories is maintained in the accounting systems of the institutions will be discussed under the subject of inventories.

The ability to produce a balance sheet showing the financial condition of a business is the first and foremost requirement of any accounting system. No institution should neglect this important phase of its financial records, which involves the vital question of assets and liabilities. Yet only a total of 27 land-grant colleges were able to fulfill the request made by the survey for the submission of a balance sheet as of June 30, 1928. Of this number, 12 of the balance sheets were in excellent form. The sheets submitted by 15 other institutions indicated that the accounting systems provided for keeping general balanced accounts, but the forms were below standard. Five colleges presented statements which were not recognizable as balance sheets. In 12 institutions that did not comply with the request, the systems apparently did not permit the compilation of statements showing assets and liabilities on a given date.

Another factor in business procedure having a bearing on bookkeeping methods and accounting practices is the question of the time of payment of obligations. In 26 institutions bills may be paid daily. There are 7 institutions where payments are made weekly and 11 where bills are settled monthly. A number of exceptions are

found where the institutions pay certain types of obligations daily, such as emergency invoices, while general accounts are paid either weekly or monthly. The practice of some universities and colleges not to pay their bills daily is due to a variety of causes. Four institutions are subject to State laws which prohibit the payment of bills except upon authority of the governing body, which meets only once every month. In five other institutions the rules of the board of trustees provide for its approval of all bills before payment and the boards in each instance limit meetings to monthly sessions. There are three institutions which pay their obligations weekly or monthly as an outgrowth of custom and two institutions because such a practice facilitates accounting. The invoices of two other colleges are paid by State officers, who permit the submission of bills but once a month from the institutions. One university reported that obligations were settled when it pays to pay and were not paid when it pays to wait, the question of interest on bank deposits evidently governing the time of payment of its bills.

Sound accounting and business practices should provide for taking advantage of discounts on bills. Considering the financial resources of the publicly supported educational institutions, failure to discount bills is inexcusable and can only be interpreted in the light of indifference to the conservation of funds. Thirty-eight of the land-grant colleges make it a regular practice to take advantage of discounts on bills. There are five institutions that do not discount their bills and one institution that discounts them whenever possible. One of the universities regards the discounting of bills of such major importance that a $40,000 revolving fund is set aside for this purpose in its budget. Another college has a standing order that auditors and public accountants inspecting its books must make a special report to the comptroller upon the discovery of any failure to discount a bill. Of the institutions not discounting their bills, the invoices must first be approved by the State board of agriculture before payment in one case, by the State board of examiners in another, by the executive committee of the governing board in a third, and the bills are paid by the State auditor in two other instances. It is evident that the failure to discount bills, thus depriving the institutions of much-needed funds in all these instances is due to long-distance control of financial procedure in centralized State offices. The governing board should take the necessary action in the case of the institution that does not discount its bills because of delays in authorization of their payment by the executive committee.

The accounting records for the entire institution should be kept in the central business office. Where branch stations or services, such as the agricultural experiment station or similar activities,

are located either on or off the campus at considerable distance, it is frequently convenient to install subsidiary or branch accounting offices. Such branch offices should only handle the accounting details necessitated by their isolation and should under no circumstances maintain a complete system covering general income and expenditures. There are 39 land-grant colleges with branch stations and services. In 23 of the institutions the accounting records for the branches are kept exclusively by the central business office and in 15 others by both the central and branch office. One institution has a station or office which conducts its own accounting system and is not responsible to the central business office. It is evident, therefore, that with one exception the sound practice of central control of accounting has been generally adopted, although duplicate records are maintained in 15 of the institutions where the accounts are kept in both the branch station and the central office. Such duplication would seem to be superfluous since it leads to extra expense in personnel, equipment, and supplies. The extent of the control exercised over the accounts of the branch stations is shown in the frequency of the financial reports required from them by the central office. The returns show that the reports are made daily in 4 institutions, weekly in 1, monthly in 13, whenever called for in 2, and both daily and monthly in 2. In most of the institutions all cash receipts must be turned into the central business office daily.

As budgetary accounting is employed generally in the land-grant institutions, an essential feature of the well-organized system is that the major divisions or departments be apprised of the status of their budget appropriations or allotments. The information should be furnished at fixed intervals of time on blank forms and should show the total allotment with deductions due to expenditures and unliquidated encumbrances, and the unencumbered balance. The reports received disclose that such statements are submitted monthly to the divisions or departments in 23 institutions, upon request in 7, and every third month in 1. Two universities stated that divisional or departmental heads were kept informed as to the balance on hand in their budget allotments through personal or telephonic communications with the chief business officer while another college furnishes the divisions or departments with memorandum blanks for use in keeping a continuous check. As the avoidance of a deficit due to overspending and as the distribution of expenditures of divisional or departmental allotments evenly over a yearly period are the vital factors in budget operations and budget accounting, official financial statements should be furnished the divisional or departmental heads not less than once every month

rather than have them depend on such transitory practices as verbal requests and occasional personal conferences. Four institutions did not supply information on the methods employed by them in advising departmental heads as to the status of their budget allotments.

Mechanical devices are generally utilized by the land-grant colleges in keeping their financial records and accounts. Thirty-eight of the institutions reported on the specific types of machines used by their accounting department. Six institutions failed to furnish information. According to the returns, there are 20 universities where bookkeeping machines are utilized to keep the accounts, while 17 colleges have installed calculators. Three institutions report the use of card tabulating machines. Practically all the accounting departments have adding machines for the facilitation of their work.

Financial Reports

In view of the fact that the land-grant college is a trusteeship and is dependent on public support, fiscal reports should be made at periodic intervals of time. The reports should contain a complete and detailed outline of the financial status of the institution, including its assets and liabilities, receipts from various sources, and expenditures for different purposes.

Thirty-nine States have laws which require the institutions to make financial reports. Returns from the other five colleges indicate that such reports are not required. In 19 States the financial reports are made annually, and in 20 they must be made biennially. The reports in the majority of cases are submitted to the governor, although a number of States provide that they shall be presented to the State legislatures.

Of special significance is the question of whether the financial reports are printed and issued as a regular publication of the institution. It is found that this practice is prevalent in only 30 institutions. The confidence of the public in the management of the institution is greatly augmented where regular financial reports are published. A further advantage is that as the practice of printing reports becomes more common, there will be developed more uniformity in the classification of receipts and expenditures among the land-grant institutions.

As each of the institutions is required to make an annual financial report to the Federal Government, the survey endeavored to obtain suggestions for their improvement and simplification. Such reports must be made to three different agencies, the Office of Education of the Department of the Interior, the Department of Agriculture, and the Federal Board for Vocational Education. Thirty-two of the

institutions offered no suggestions for revision of the reports. There were five universities that made suggestions for the simplification of the reports required by the Office of Education, four of the reports of the Department of Agriculture, and none of the reports of the Federal Board for Vocational Education. General suggestions applying to all three of the Federal agencies were presented by two institutions.

Changes suggested in the forms of the reports of the Office of Education included the revision of the schedule covering expenditures to conform to the so-called "Carnegie forms" and the General Education Board publications; the segregation of items of income and expenditures into three divisions, plant, endowment, and current expenses; and the widening of the spaces to avoid crowding of figures. One university proposed that since the classifications and headings in the Office of Education's report were different from those of its own accounting system, each university be permitted to submit its published annual financial report instead of filling out the official blanks. Suggestions for improvement of the Department of Agriculture's report comprised the proposals that the classification of items covering disbursements of the agricultural experiment station and the extension service be made identical; that the submission of abstracts supporting the detail analysis be not required for any item which is less than 1 per cent of the main item; that the headings of the Department of Agriculture's report conform to those used in the report of the Office of Education; and finally that more unit spaces be provided in the forms so that necessary figures may be filled in.

The general criticisms of the reports required by the Federal Government were based on their lack of uniformity. For instance, it was pointed out that one of the forms contains 19 main headings, all of which have 2 or more subdivisions. In another of the forms 9 main headings are used with 27 subheadings. Some of the main headings of one report constitute the subheadings of another report. As a result the colleges are compelled to conform to two or three systems of classifications in making their annual returns. One institution called attention to the fact that this variation in headings placed an unnecessary burden on the accounting departments in compiling the figures. An additional complication is found in the requirements of some State governments that their institutions follow the accounting classifications adopted by the States, which are at further variation with the Federal Government's classifications. A second university expressed opposition to any changes in the schedules except once every 10 years, insisting that frequent revisions prevent the compilation of comparative figures and data, which are of genuine value in the higher educational field.

Audits

The accounts of a public institution should be the subject of both internal and external audits. Not only should a continuous system of check on all financial transactions be installed within the institution, but verification of the items and testing of the accuracies of the records should be conducted by outside examiners.

Although a number of land-grant colleges use registering machines and duplicate sales slips in handling cash receipts, detachable coupon cards in the collection of student fees and certified vouchers in making disbursements in order to avoid and prevent errors, an examination of the reports shows that in only 25 institutions is a continuous internal control audit maintained. Considering that public funds are being administered, it would seem that every institution would have inaugurated such a system.

For the effective operation of a continuous internal control, the responsibility of internal audits should be centralized in one official. Eleven of the twenty-five universities and colleges have an institutional auditor or accountant for this purpose. In six institutions the internal audits are conducted by the treasurer or bursar and in three others by the finance secretary, while four institutions report that the business staff does the work. These persons are under the direct supervision of the business officer, who reports to the chief executive or the board of trustees. The audits are thus a part of the work of the business office. The features of an adequate system of an internal check are illustrated in the following extract from the report of an institution:

> In all departments where the cash receipts are of sufficient volume, cash registers are in use. The keys are in the custody of a subcashier in the bursar's office. The readings are taken by the subcashier and verified by the cashier of the department. The cash is then counted and taken up by the subcashier, and a duplicate cash receipts record is prepared, one copy of which remains in the department, the other being incorporated in the daily cash receipts vouchers prepared in the bursar's office. Duplicate cash sales tickets, supporting the daily cash report, are made out by the department, one copy going to the department files, the other to the cash receipts voucher in the bursar's office. With a few exceptions, noted elsewhere in our report, all departmental cash records are made out on numbered stationery.
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> In the case of departments not receiving a sufficient amount of cash to warrant the use of a cash register, a numbered bound book containing duplicate sales tickets is issued to the department. A record is kept in the bursar's office covering each sales book issued, with a space provided for each sales ticket, to be filled in as the tickets are sent in by the department. Each sales ticket is accounted for.
>
> Charge sales tickets are likewise made out in duplicate on numbered forms, one copy being filed by the department, the other being sent to the bursar's office. Here it is posted to the accounts receivable ledger and listed on dupli-

cate numbered journal sheets, separate sheets being prepared for each department. One copy of the journal sheet is sent to the department, the other is entered in an invoice register, the monthly totals of which are posted to the general ledger.

A close control is exercised over the collection of students' fees. About 97 per cent of all fees are collected on registration days. The fee card originates in the office of the registrar. Each card consists of a series of detachable coupons, all bearing the student's name, course of study, etc. The amount of each fee is filled in by the registrar in accordance with a printed list showing the fee payable for each course. The fees charged are checked by the auditor. On registration days, coupon 3 is detached and held by the head accountant, coupons 8 and 9 are handed to the cashier. Coupon 9 is the student's receipt. From time to time, as the collection of fees proceeds, paid coupons 8, together with the cash received, are taken up by the head accountant; coupons 8 are then totaled and agreed with the total of the corresponding coupons 3. A receipt for the amount turned over is given to the cashier and the cash is handed to a representative of the depository bank, who issues a deposit ticket. Paid coupons 8 are filed in the bursar's office; the corresponding coupons 3 are stamped "paid" and sent to the registrar's office. The registrar now issues class cards for each student and forwards them to the instructors in charge. No student is admitted to a class unless the instructor has a card to that effect.

In exceptional cases, students who are not prepared to pay their fees are granted a short time allowance. This privilege is extended to them by the comptroller in person. A deferred-fee list showing students' fees in arrears, is kept in the bursar's office and collection is followed up closely.

When collection of each semester's fees has been completed, the registrar renders a report to the board of trustees, showing the totals of all students' fees certified to him.

Collection of students' loans and interest thereon is made under the direction of the bursar. A duplicate receipt is made out, the original for the student, the duplicate for the file of students' loan papers. A cash-receipts record is then prepared in duplicate, showing all collections of principal and of interest for the day. One copy is placed in the bursar's files, the other is filed with the general cash receipts voucher.

Bond interest coupons are clipped by the treasurer, who has the custody of the securities. He forwards to the bursar's office a deposit ticket for the amount, together with a detailed list of the coupons collected. This list is checked by the bursar against the detailed securities ledger.

All cash received is deposited intact to the credit of the university treasurer.

All disbursements are made by warrant, drawn either by the State auditor, upon vouchers certified by the business office, or by local warrant drawn upon the treasurer of the university. Petty expenditures are made from petty cash funds operated on the imprest plan.

Pay rolls: Prior to the issuance of warrants or certification to the State auditor, all pay-roll vouchers for appointees and for employees under the civil service system are checked against the certifications by the secretary of the board of trustees and by the State civil service commission, respectively. The pay of temporary employees is certified by the head of the department.

A valuable feature of the system of internal check is the rendering of monthly statements by the business office to the heads of the various departments. The detailed accounts of department income and of appropriations

are typed in triplicate by the use of bookkeeping machines. The master sheet constitutes the ledger account; the duplicate, showing the transactions for the month, together with opening and closing balances, is sent to the head of the department, the triplicate to the dean of the respective colleges. This relieves the departments of the burden of bookkeeping and furnishes them with current statements of income and expenditure, encumbrances, and free balance. While the examination and detail checking of these reports is not obligatory upon the heads of the departments concerned, many, if not all of them are vitally interested in the status of their departments and may be depended upon to detect and report any material errors committed.

The audits are thus a part of the routine of the business office.

An important factor is the frequency with which reports on the internal audit are made. If control is to be continuous, as the name implies, reports should be prepared at least monthly, otherwise the term is more or less of a misnomer. In the list of 25 colleges claiming to maintain systems, monthly reports are made in but 14 instances.

The returns of the remaining institutions reveal that the reports are prepared quarterly at 2, semiannually at 2, annually at 2, and whenever called for at 2. In 8 institutions the reports are submitted to the governing boards, in 8 to the president, in 1 to the State board of education, in 1 to the State budget director, in 1 to the State auditor and examiner, and in 6 to the business officer.

Outside audits serve as additional safeguards to internal checking and verification of accounts. Twenty-nine States have enacted laws requiring external audits of their land-grant institutions. In 14 other institutions where no State law has been enacted, the boards of trustees have adopted rules providing for the examination of the books by certified public accountants. Of the entire list of land-grant colleges there is only one, the Alaska Agricultural College and School of Mines, whose accounts are not audited by outside examiners. The external audits are made by State agencies, such as the State auditor, examiner, or other official in 29 institutions and by public accountants in 11 others. In the case of the universities of Nebraska and New Hampshire the books are examined by both State agencies and outside accountants. The colleges under State control at Cornell University are audited by State officials while its privately endowed colleges are audited by certified examiners. There are thus three institutions the accounts of which are subject to double external audits.

The interval of time at which the audits are conducted provides a criterion of their effectiveness. An examination of the accounts of every institution should be made at least once a year and even more frequent audits are advisable. Under no circumstances should advance notice be given of the date of the visit of the auditors. Reports show that external audits are made annually in 27 institutions,

semiannually in 7, and quarterly in 3. There are three universities, however, reporting that they are conducted at irregular intervals, which would lead to the conclusion that they are regarded as perfunctory. It is explained in one of the cases that lack of sufficient funds for the operation of his office prevents the State auditor from auditing the accounts with regularity. Another institution furnished no information concerning the time intervals of its external audits, stating that they were made as the claims were presented to the secretary of state. Such an arrangement can in no way be interpreted as a systematic and thorough audit of its books and accounts.

The scope of the external audit depends upon the completeness of the system of internal check, and where the system is well organized along the lines already indicated, the audit may be limited to substantial tests and general verification. A matter of particular importance is that the cash, securities, and inventories be checked, yet the reports received disclose that in only 17 institutions does the external audit cover all three of these items. On the contrary, there are 12 institutions where the audit comprises the checking of only the cash and securities and 10 others where only the cash is checked. The audits of two additional are limited to the checking of the cash and inventories, the securities being omitted. Verification of the different classes of income is also a primary function of the external audit. In the case of 39 institutions the income from tuition and other fees is verified, there being four in which no such verification is made. Similarly there are 40 institutions where the audit includes verification of institutional receipts, this function being neglected in three instances.

No external audit may be regarded as complete unless a thorough examination and verification is made of all expenditures or a substantial test of them. Authority and approval of each expenditure should be meticulously checked. Prices and extensions should be verified and the pay rolls examined in detail. The audits of 36 institutions include the authentication of authority of expenditures and of 37 the approval of expenditures. Prices and extensions, however, are verified in only 31 colleges while the pay rolls are audited in 37 instances. In four of the land-grant institutions, all disbursements are made through the State auditor's office, the invoices being paid through vouchers drawn by that official. For this reason, the audit apparently does not include the verification of expenditures. Where the institutions maintain experiment stations, separate bureaus, or branch offices, their books should be examined at the same time as the accounts of the main business office. The audits include the experiment station financial records at 33 institutions, separate bureaus at 19, and branch offices at 20.

Purchasing

With the recent expansion and development of land-grant institutions, their purchases have grown to a large volume. The purchasing procedure, therefore, is of great significance. It should be conducted in a systematic manner with essential checks to avoid extravagance, to assure the enforcement of economical practices, and to prevent overdrawals of budgetary allotments.

The requisition for a purchase should originate in the subject-matter department of the institution. It should then be sent to the dean or director of the major divisional unit for approval. Before submission to the final approving authority, it should be reviewed by the accounting department as to the availability of funds in the particular budget allotment from which the purchase is to be made. This is an important precautionary measure that should not be neglected. Final approval should be vested in the chief business officer. After he has signed the requisition, the purchasing branch should proceed to secure prices or bids and complete the purchase by issuing the order and furnishing the department with a copy.

While the majority of land-grant colleges follows generally this orderly procedure for handling purchases as outlined, a review of the returns indicates that a number have adopted illogical practices. There were four institutions that furnished no information on purchasing procedure. In the others requisitions are initiated by the departments in all of the 40 cases, but in only 15 are they sent to the dean or director of the major division for his approval. In view of the fact that deans or directors are the responsible heads of unit organizations with definite budget allotments under their control in most of the institutions, it is almost impossible to conceive of a procedure which permits purchasing requisitions covering expenditures from such allotments to be drawn and executed without their approval. As previously emphasized, another fundamental step is the checking of requisitions by the accounting and finance office to ascertain whether sufficient funds are available to make the proposed purchases. Returns on this particular point were not received in full, but the practice is reported in use in 19 institutions. As the chief business officer has the final reviewing authority over requisitions in a number of the other institutions and checks them against allotments prior to their approval, little doubt exists that the procedure has been almost universally adopted.

Final approval of the requisitions prior to their submission to the purchasing branch for execution is vested in a committee of administrative and faculty officers at 2 institutions, in the president at 8, and in the chief business officer at 28. The purchase order is

issued by the head of the department at one college, an unusually archaic arrangement, while at another institution a requisition clerk is employed who approves the requisitions and forwards them to the State board of control for review and execution. The State business manager is empowered with final approval over requisitions of the Kansas State Agricultural College. In three instances, where the purchasing is done by a central State agency, the signature of the president is required to the requisitions before they will be accepted, and in two other cases the president approves only requisitions on articles brought by the State agency, the remainder being reviewed by the chief business officer. One institution reported that no large purchases were made unless finally approved by the finance committee of the governing body. That such anomalous procedures are cumbersome and require needless overhead supervision is obvious. The plan of having a faculty or administrative committee approve requisitions is particularly involved and merely has the effect of complicating and delaying the institutional purchasing. Charged with countless higher administrative responsiblities, it would seem also that the president should be relieved of the detail of personally checking and approving every purchase made by the institution.

Land-grant colleges compelled to make their purchases through central State agencies are further hampered by long-distance control and external interference with affairs that should be regarded as entirely internal and local. The incongruous precedures in some instances present additional disadvantages. In a number of cases the central State agency handles all purchases made out of certain funds of the institutions, the college purchasing agent conducting the buying from other funds. At one university, purchases out of State appropriations are made by the State purchasing agent, while the institutional purchasing agent handles purchasing from funds secured from other sources. Another institution reports that the State central agency controls all large purchases, the local administration's buying being limited to small and minor articles. Similarly another college is permitted to purchase perishable and emergency supplies, but other kinds of materials and equipment must be bought through the State purchasing agency. It is evident that no systematic business procedure is possible with such divided authority over buying from particular funds and over certain types of materials.

An inquiry into the procedure where institutions are obliged to do their buying wholly or partially through State central agencies reveals that considerable delay results almost invariably before delivery is finally made on the goods. This is due to the more or less involved procedure required in the State purchasing offices. Requisitions must not only be reviewed and officially approved, but before purchases

are made, bids must be advertised, firms must submit prices, and formal contracts must be let. One university before preparing a requisition must send a list of the needed supplies to the State purchasing agent with the names of firms selling the articles. After the State agent has secured the estimates, the requisition is then presented for approval. In several States the central State agency consists of a joint committee of State officials, which must meet and approve all purchasing requisitions from the land-grant institutions before they are executed, a further source of delay. There are several instances, however, where the State purchasing agency expedites emergency purchases for the colleges without unnecessary delay.

The survey made a particular inquiry into the question of whether the State central purchasing authority denied institutions the right of buying scientific equipment, technical apparatus, and other types of educational materials. Of the 13 institutions compelled to do their buying either wholly or partially through a State agency, 9 reported that it was not obligatory to purchase scientific apparatus and technical equipment through the State purchasing agent. In the other four institutions every purchase must be made by the State central office. There were four universities that reported to the effect that all library books and magazines were bought by the institution direct without interference by the State purchasing authority. Exceptions are also made of livestock and equipment at one university and of feed for livestock at three colleges. In cases where a department desires a special piece of apparatus, either as to manufacture or kind, such purchases are permitted in 10 of the 13 institutions, no difficulty being encountered due to State control of purchasing.

Even though an institution has full authority over its own purchasing, it should not fail to take advantage of State contracts, whenever possible, in order to secure lower prices on various kinds of supplies. According to the returns, 12 land-grant colleges do not observe this practice, an omission which should be corrected if economical purchasing is to be enforced.

Among the remaining institutions, 12 buy their light bulbs under State contract and 13 both their light bulbs and coal, while 5 report that light bulbs, gasoline, oil, greases, fertilizer, auto tires, and other accessories are purchased through State contracts. Seven other institutions buy numerous other sorts of supplies under State contracts.

Pool buying is another economical measure which should be practiced by every land-grant college. This is accomplished through membership in buyers' associations. An examination of the reports indicates that only 25 institutions belong to such organizations and thereby take advantage of opportunities for pool-buying. Twenty-two of the institutions have membership in the Association of Educational Buyers, two in the Southern Educational Buyers Associa-

tion, and one makes purchases through the Association of Southern Colleges and Universities. In the case of two institutions, the purchasing of specific types of supplies is pooled with other departments of the State government, an advantageous arrangement.

Inventory

The maintenance of an inventory of the physical assets of an institution of higher learning is an integral part of its business procedure. With millions of dollars invested in both permanent and movable property, it is particularly incumbent upon the land-grant colleges to keep accurate, detailed, and current records of their physical holdings. A careful check should likewise be maintained of movable property which upon being expended, lost, or discarded should no longer be carried as assets of the institution.

The most effective system is the perpetual inventory. Such a procedure provides that a property ledger be kept with entries of all permanent and movable properties, which are balanced with the general ledger. The movable property record should be kept by entries in the ledger for all acquisitions of articles or equipment and by the preparation of an inventory card showing the class of property, price, department, and building in which it has been placed. A duplicate of the card is sent to the department. When the article or piece of equipment has been discarded or otherwise dropped, the card should be returned by the department to the business officer with a report. The property is then charged off the ledger. Periodical checks of the records in the department and in the business office should be made, and for every card there must be a corresponding piece of property. By such a system it is possible for the institution to maintain an accurate and detailed record of all physical assets, which is constantly current and available for public reports.

To facilitate the functioning of a perpetual inventory, an inventory department should be organized in the business office with a responsible person in charge, although the work may be handled as part of the regular routine of the business office. The advantages of a definite organization is that its personnel may maintain a continuous check of the movable property by visiting the departments regularly to verify the records. Through such an arrangement the department heads are considerably relieved of constant surveillance over equipment and properties in their custody. Another type of inventory is the periodical inventory, which provides for the appraisal of physical properties at fixed intervals. Its disadvantages are that it necessitates a checking of the entire physical plant of the institution within a limited space of time, imposes an extraordinary amount

of work noneducational in character on the heads of academic departments charged with making the inventories in most cases, and does not enable an accurate appraisal of the properties except at fixed intervals.

Reports show that 13 of the land-grant institutions maintain perpetual inventories and that 31 conduct periodical inventories. Three maintain both perpetual and periodical inventories. Of the 13 institutions which have adopted the system of perpetual inventories it is found that they are well organized in most instances. Not only are property ledgers kept with control accounts in the general ledger, but inventory cards are in use for checking and identifying equipment and other movable property.

In seven of the institutions, inventory departments have been organized with a supervisor, clerk, or acountant in charge, while in three others the secretary or business officer is the responsible head. One college reports that its perpetual inventory is under the supervision of the assistant purchasing agent. The supervisor or clerk maintains a perpetual check of the properties in six institutions while the department heads are held acountable in the other seven institutions returning cards to the inventory department when articles become unserviceable or are destroyed.

As the inventory is closesly related to purchasing and accounting its operation should be under the administrative authority of the chief business officer. Such an arrangement exists in six institutions operating perpetual inventories. At 2 colleges the inventory supervisor is responsible to the purchasing agent, at 1 to the operating superintendent, at 3 to the president, and at 1 to the auditor of State funds. One college did not report on the point.

Inquiry into the procedure followed by the 30 institutions where periodical inventories are maintained indicates not only that inventories are regarded as superficial and perfunctory in a number of the institutions but that they are conducted at such wide intervals of time as to be of little genuine value. Each one of the land-grant colleges was requested to submit an outline of its inventory system. Seven of the institutions failed to present any outline whatever which justifies the conclusion that apparently little importance is attached to them. It was found also that the inventories were made biennially at five institutions, at intervals of several years at one, and at no fixed time in two other instances. The remaining 22 institutions conduct them annually, the customary and generally accepted interval of time for property appraisals.

In the institutions making inventories at periodic times no inventory departments with regularly employed personnel have been established. The result is that the inventories must be conducted either through the institutional administrative or academic organization. According to the returns received, the president handles

the inventory in 1 institution, the business officer in 3, an outside company in 1, and the heads of the academic departments in 23. Two institutions did not supply information as to the identity of the officials conducting their inventories. As already pointed out, the plan of compelling department heads to assume full responsibility for inventories imposes upon them activities foreign to their regularly assigned academic duties and leads to the intermingling of business and instructional responsibilities, which should be rigidly segregated.

The keeping of an inventory of physical assets is an order of the State government in 13 institutions and of the board of trustees in 20 institutions. One college is required by State law to maintain an inventory of its supplies. There are also 14 institutions which are compelled by the State to make an annual inventory report. An excellent criterion of the effectiveness of a property inventory is whether the inventory is kept in balance with the general ledger. Ten institutions report that the inventory is balanced with the ledger as to the entire institution, eight by departments, and five additional by both institution and buildings. No attempt is made to balance the general ledger with the inventory in 24 other institutions.

Automotive Equipment

Automotive equipment owned and operated by the land-grant colleges has increased to such an extent as to constitute a genuine problem in business procedure. The amount of capital invested, the methods of supervision, the cost of operation, and the records of use of motorized vehicles are questions which should receive the attention of executive and administrative officers if this type of equipment is to be handled and operated in an economical manner.

Returns show that of the 43 institutions reporting there is none which does not own or operate automotive equipment of some character. The total number of trucks and commercialized vehicles owned by these institutions amounts to 466 and the number of passenger cars 332, the grand total being 798. While all of them own and operate trucks, there are 11 which have no passenger cars.

The institutions operating the largest number of motor cars are the Oregon Agricultural College with 73, Cornell University with 67, University of Illinois with 66, Michigan State College with 48, University of Nebraska with 45, and University of Minnesota with 43. Three own between 30 and 40 cars, 5 between 20 and 30, 4 between 15 and 20, 6 between 10 and 15, 15 between 5 and 10, and 4 fewer than 5.

The total investment in automotive equipment amounts to $506,204, of which $302,284 is in trucks and commercialized cars and $203,920 in passenger cars. These figures, however, do not comprise the complete capital investment, as four institutions, each owning a large

number of motor vehicles, were unable to furnish their cost. Three other colleges gave only partial figures on the value of their motored equipment. The institutions failing to furnish data on the costs of either trucks, commercial or passenger cars were Cornell University with 67 cars, Michigan State College with 48, Pennsylvania State College with 31, and Rutgers University with 27. There is little doubt that the proprietorship of such a large number of motor vehicles represents capital outlays of considerable proportion.

Considering the great number of automotive vehicles operated by the land-grant colleges with consequent heavy investments, a well-systemized plan of maintenance and operation based on sound business procedure should be established. Motor cars are institutional property. They should be subject to the same strict supervision as any other type of property. The best method of control is to place all such equipment under the general supervision of an administrative officer responsible for its housing, custody, and maintenance. A central garage should be established for housing and servicing the motor vehicles. No cars should be permitted to be taken from their garages except by duly authorized members of the staff, for official use. The name of the institution should be placed in a conspicous place on each motor vehicle, and it should also be equipped with a device for recording mileage. Records of operating and maintenance costs should be kept for every car on a form prescribed for that purpose. Its expenses should be charged to the department utilizing it. Where motor vehicles have been assigned to a branch or department located some distance from the central garage, convenience may demand that they be housed in a separate garage, but centralized control should still be maintained over them and records of their maintenance and operating costs kept. Repairs should be made, whenever possible, at the central institutional garage. In case supplies and repairs are secured from other sources, specific authority should be obtained from the supervisory officer.

Control of automotive equipment in the land-grant institutions is generally widely decentralized and managed in a more or less haphazard manner. In only a few instances has a well-organized plan of supervision, operation, and maintenance been established. There are 11 institutions that have central garages for servicing and housing the institutional motor vehicles under the control of an administrative officer. Four of the central garages are under the supervision of the superintendent of buildings and grounds, three under the supervising architect or an engineer, one under the head of the department of mechanic arts, one under the head of the department of agricultural engineering, and two under garage superintendents. The reports show that the maintenance of the automotive equipment has been placed on a business basis in practically all of these cases.

The central garages are financed by rotary funds at nine universities, accurate records being kept of supplies and repairs, and charge-backs made against the departments. One other college conducts the garage through both a rotary fund and institutional overhead, while another pays the entire cost from institutional funds. The operation of the garage by the engineering or mechanic arts departments is particularly advantageous where it is possible to use it as an instructional laboratory. The procedure of obtaining service for the cars in the central garage consists of regular departmental requisitions presented to the purchasing agent or business office.

Motor vehicles in the remaining 31 institutions are under the direct supervision of the departments or branches without interference by central authority. Such a plan lacks organization, is not conducive to economical administration, and leads to duplication. In seven institutions the departments maintain separate service stations, each for its own cars and each employing its own force of mechanics. The repair and maintenance work of the motor equipment controlled by the departments in 21 other universities is done by outside private concerns as job work, an extremely unsatisfactory arrangement when a large number of cars is owned. There are two institutions where the departments have made contracts with outside concerns to keep the motor vehicles in repair.

Insurance

Diverse practices exist among the land-grant colleges relative to the protection of their property through the underwriting of insurance. There are six institutions that carry no insurance of any type, due to State laws which do not permit the use of public funds for this purpose. In the event of property destruction through fire or other causes the States make replacements by direct State appropriations. These States are Massachusetts, Michigan, Minnesota, Mississippi, New Hampshire, and Rhode Island.

Four other States carry their own insurance, either setting aside reserve funds or withholding a percentage of the institutional funds to provide protection. In the case of two other land-grant colleges the insurance on its buildings is underwritten through a general State blanket policy placed on all State-owned buildings by the State board of insurance examiners. Another institution carries insurance on certain buildings on its campus, while the remaining structures are subject to the State law forbidding insurance. An additional college is allowed, under State statutes, to maintain insurance on dormitories constructed by bond issues or loans, but is not permitted to use its funds to pay insurance premiums on other properties. The returns show that 30 institutions carry insurance of one

kind or another, paying the premiums out of State or institutional funds. Table 21 gives the institutions with kinds of insurance carried and the amounts.

TABLE 21.—*Kinds and amounts of insurance carried by the land-grant colleges*

Institution	Amount of insurance					
	Fire	Liability	Tornado	Theft	Other	Total insurance carried
1	2	3	4	5	6	7
Alabama Polytechnic Institute	$1,035,000	----------	$35,000	----------	----------	$1,070,000
Alaska Agricultural College and School of Mines	202,000	----------	----------	----------	----------	202,000
University of Arizona	2,116,500	$150,000	13,000	$24,000	----------	2,303,500
University of California	----------	25,000	----------	----------	----------	25,000
Colorado Agricultural College	883,400	----------	----------	----------	$15,000	898,400
Connecticut Agricultural College	1,857,530	20,000	----------	7,670	----------	1,885,200
University of Florida	2,214,775	----------	----------	----------	----------	2,214,775
Georgia State College of Agriculture	355,500	----------	----------	----------	----------	355,500
University of Idaho	2,250,000	----------	----------	----------	----------	2,250,000
University of Illinois	[1] 739,650	[2] 45,000	780,500	46,290	35,000	1,646,440
Purdue University	2,432,425	----------	463,275	14,000	628,000	3,537,700
Iowa State College	720,900	50,000	597,200	17,000	----------	1,385,100
University of Kentucky	2,507,200	----------	73,250	4,150	20,000	2,604,600
Louisiana State University	2,883,600	40,000	----------	12,500	----------	2,936,100
University of Maryland	1,550,000	[2] 7,500	----------	7,000	----------	1,564,500
Massachusetts Institute of Technology	9,600,000	----------	----------	----------	----------	9,600,000
University of Nevada	520,550	----------	----------	----------	----------	520,550
Rutgers University	3,345,380	----------	----------	49,000	120,000	3,514,380
Cornell University	9,500,000	[2] 62,500	----------	110,000	----------	9,672,500
North Dakota Agricultural College	1,219,500	697,376	1,203,500	----------	----------	3,120,376
Ohio State University	[1] 40,000	20,000	----------	----------	----------	60,000
Oregon Agricultural College	100,000	----------	----------	----------	----------	100,000
Pennsylvania State College	5,475,000	2,468,151	----------	----------	1,344,000	1,444,000
South Dakota State College	----------	----------	----------	----------	----------	7,943,151
University of Tennessee	1,619,970	93,000	136,960	29,000	25,000 4,200	25,000 1,883,130
Agricultural and Mechanical College of Texas	439,400	75,000	----------	----------	45,000	559,400
University of Vermont	1,000,000	----------	----------	2,000	80,000	1,082,000
Virginia Agricultural and Mechanical College	1,427,000	430,000	----------	----------	25,000	1,882,000
University of Wisconsin	16,326,742	65,000	----------	24,000	190,000	16,605,742
University of Wyoming	400,000	40,000	----------	5,000	25,000	470,000
Total	72,762,022	4,288,527	3,302,685	351,610	2,556,200	83,261,044

[1] Only certain buildings. [2] Estimate.

The total insurance carried by all the 30 institutions listed in the table amounts to $83,261,044. Of this sum the greater proportion represents fire insurance on buildings and contents, the total of this item alone being $72,762,022. The University of Wisconsin has $16,326,742 fire insurance, the largest amount listed. The institutions with the next largest amounts are the Massachusetts Institute of Technology with $9,600,000 and Cornell University with $9,500,000. Fire insurance carried by the remaining universities and colleges ranges from $5,475,000 to $40,000. Only a limited number of land-grant colleges make it a practice to carry liability insurance. There are 16 institutions with such policies, the total insurance amounting

to $4,288,527. The Pennsylvania State College with $2,468,151 carries an unusually large amount of this type of insurance. Other institutions having considerable liability insurance include the North Dakota Agricultural College with $697,376 and the Virginia Agricultural and Mechanical College with $430,000. Practically all the policies of the remaining institutions do not exceed $100,000. Institutions located in storm areas make it a practice to carry tornado insurance, the total amount in eight of them being $3,302.685. There are also 14 land-grant colleges that have taken out theft insurance amounting to $351,610 and 13 that carry a total of $2,556,200 of other kinds of insurance.

In view of the large amounts of insurance carried by some institutions and in view of the fact that a number carry no insurance whatever, data were collected on losses where insurance was collected and on losses where no insurance was collected. The returns reveal that nine institutions carrying insurance have sustained losses ranging from $43 to $122,145, the total of all of them being $382,688. Premiums to the amount of $433,366 were paid by these institutions. Of the land-grant colleges carrying no insurance, which were also nine in number, the losses varied from $500 to $200,000. An aggregate loss of $566,800 was sustained.

Responsibility for placing the insurance, determining the amount to be carried, and making adjustments with insurance companies is not vested in the same official at all the institutions. On the contrary, the procedure differs to a marked extent. The placing of insurance is largely a routine business matter that should be handled by the business office. Eighteen institutions have placed this responsibility on the chief business officer. But in four cases the board of trustees places all the insurance, while in one the president handles the details and in another the purchasing agent. There are two colleges where the placing of insurance is under the jurisdiction of State officials, the local institutional officers having no authority over it. The State commissioner of insurance handles the matter in one case and the secretary of the State board of purchase and supplies in the other.

Exercising final responsibility over the property of the institution, it is advisable that the board of trustees determine the amounts of insurance to be carried. According to the reports received, the governing board decides the question in seven institutions, but in the remainder divers officials are vested with the responsibility. The chief business officer determines the amounts of insurance to be taken out at 12 institutions, a committee of administrative officers at 2, the president at 3, an outside appraising concern at 1, the State board of examiners at 1, a State official at 1, and the departments

through the business officer at 1. One State has enacted a law fixing the amount of insurance to be carried by its higher educational institutions.

In the case of losses, the adjustments with insurance companies are made by various officials. The chief business officer represents the institution in such adjustments at 18 universities and colleges. In 3 the president acts in this capacity, in 2 a committee, and in 1 the superintendent of buildings and grounds. Insurance adjustments by four other institutions are handled entirely through State agencies. The State attorney general is responsible in one instance, the State board of examiners in a second, the State insurance commissioner in a third, and the secretary of the State board of purchase and supplies in a fourth. Insurance policies carried by the institutions are written in several ways. In 7 instances, the policies cover the entire institutional properties while at 14 separate policies are taken out not only on individual buildings but also on the contents. The policies of four institutions cover individual buildings including contents.

Travel

With the development of state-wide extension services, with the expansion of research agencies, and with the general augmentation of educational activities, expenditures of most of the land-grant colleges for travel have attained large proportions.

Such expenses were formerly confined to the cost of periodical trips of trustees to attend board sessions and to occasional professional trips by the president. At present, however, the work of the institution extends to every corner of the State. Members of the extension staff are traveling almost continually. Research projects are conducted away from the institutions necessitating travel by members of the research staff. Administrative, supervisory, and business officers must make frequent trips. The best interests of the institution are also served by having members of the academic faculty attend conferences of professional associations.

An effort was made in the survey to collect figures on expenditures for travel by the various land-grant colleges. In the case of two institutions, it was reported that the figures were not kept. Two others were unable to furnish them in segregated form, while a fifth apparently did not maintain a separate account for travel but charged such items to miscellaneous expense.

The expenditures for travel by 37 of the institutions submitting data total $1,674,431, of which $26,314 includes traveling expenses for the governing boards, $22,752 for the presidents, $151,137 for other administrative officers, and $1,474,228 for the faculty. Omission of the travel expenditures for the agricultural extension service and experiment station by 10 of the colleges reduces the figures considerably, which otherwise would probably aggregate $2,000,000. Only 24 of the 37 institutions reported travel expenditures for the governing boards, the amounts ranging from $114 to $3,092. In two instances, the college does not pay the traveling expenses of its

board of trustees, the item being defrayed by other State appropriations. There are 10 other institutions where no expenditures for this purpose are made. The largest amount expended for travel by the president was $2,016 by the University of Wyoming, and the lowest was $72 by the University of Nebraska. The only institution reporting no travel expenditures for its president was the University of Vermont. Travel by the faculty comprises the greater proportion of the expenditures, the highest amount being expended by Pennsylvania State College with $191,634, Ohio State University with $151,884, University of Wisconsin with $129,360, University of Kentucky with $125,163, University of Minnesota with $120,169, and Purdue University with $111,658. The lowest amount listed was $157 expended for faculty travel by the Alaska Agricultural College and School of Mines.

Considering that large amounts of public funds are utilized for travel, it is essential not only that a rigid system of control be established, but that a definite policy be adopted. No traveling should be sanctioned except when required by public interest or institutional needs. Control over all travel should be vested in the chief executive officer under limitations prescribed by the governing board.

The failure of many land-grant colleges to centralize authority, to provide proper procedure, and to adopt necessary regulations governing travel has resulted in confusion of practices and in the imposition of restrictions of almost every conceivable character. In nine institutions, authority over travel has been taken entirely out of the hands of local officers and assumed by the State governments. The State exercises partial control in 10 other universities. There remain only 25 land-grant colleges which still retain complete control over travel by members of their staffs, a situation worthy of the concern of every institutional executive.

Disadvantages of control over institutional travel by State agencies are so obvious as to preclude the necessity for amplification. State officials are unacquainted with institutional requirements and procedure. They have no means of intimate study of the educational needs of the universities and colleges. The exercise of State authority over travel of the land-grant colleges consists of two types, control of travel within the State and control of travel without the State. Returns indicate that travel within the State is subject to the authority of the State governments in the case of 12 institutions. The control is exercised in several ways. While a State official has the power of approval or disapproval of travel requests of the land-grant colleges in some instances, State control is enforced in others by the auditing and disallowance of travel-expense claims. State

agencies vested with power of control over expenditures for travel within the State differ also as to identity.

In one State the governor and the State board of examiners are jointly empowered to pass on and disallow travel claims, while in a second the governor exercises the power alone. There are three States where the State comptroller must approve requests for travel and two others where the State auditor has the power of approval or disapproval. The State board of audit establishes rules and regulations governing travel expenditures of the institutions in one State, the State board of examiners audits all travel claims in one, and the State finance commissioner has authority to disallow them in one.

The control exercised by the State agencies over travel expenditures of the land-grant institutions without the State is even more stringent. Fifteen institutions report State control over their out-of-State travel, a number of them being duplications of institutions where State control is maintained over travel within the State. Staff members of four institutions are not permitted to travel out of the State except by specific authority of the governor. The sinking-fund commissioner must pass on such requests of another college while in the remainder the same State agencies control travel without the State as within the State. In one State, control over travel limits it to attendance by faculty members at annual meetings of scholastic and professional associations. There are two States which permit only a single representative of the institution to attend the same educational convention held outside the State. In the case of two other States, tips are prohibited. One State allows only railroad and Pullman fares to be paid in out-of-State travel, and another State forbids the use of parlor cars. A limit of $5 per day subsistence is fixed by one State for college staff members traveling at public expense. A bifurcated control over travel exists in five instances, the local administration having jurisdiction over travel paid out of institutional funds, while a State agency exercises control over travel from State appropriations.

An examination of the practices governing travel in the 25 institutions where no State control is maintained indicates that definite policies have been adopted in the majority of cases. Six report, however, that no specific travel regulations are in force. In 7 the governing boards have prescribed limitations on travel, and in 12 others the president has final authority over the granting of travel requests. Various methods for the proper control of travel have been established by the institutions. In 13 there are regulations prescribing the conditions under which travel will be permitted to conventions and association meetings, in 14 limitations have been placed on business trips, and in 6 rules are in force covering payment of expenses of candidates for positions on the staff. Other kinds of travel including research are subject to limitations in four institutions. At two colleges the travel is regulated entirely by the

annual budget, which sets aside specific amounts to be expended by each department for this purpose. Two institutions prescribe that the travel expenses of only administrative officers and deans shall be paid to educational conventions. Another institution allows but one representative from each major division to attend meetings of professional organizations while two others limit the number of trips of members of the faculty to one every year. Only half of the expenses of staff members are paid by the institution to educational gatherings in one case. It was found that travel requests were approved by the dean in one college and by the head of the department at another without submission to higher authority.

Regardless of the regulations and limitations in force, a fixed policy governing travel should be adopted. The Connecticut Agricultural College submitted the following principles for the government of the payment of traveling expenses of staff and faculty members to conferences of professional associations, which might well be followed by every land-grant college:

First. That the basis of decision shall be the needs of institution rather than that of the individual.

Second. When the necessity that the institution be represented at a conference is clearly evident, then the institution should pay salary, railroad, pullman, hotel, and living expenses.

Third. When it is desirable but not essential for the institution to be represented, then the institution may pay part of the expenses and the individual himself bear part of them, under some such arrangement as the following: Institution to pay railroad and pullman fares, individual to pay meals and hotel bills.

Fourth. When it is desirable for the institution to have an individual secure additional professional training through attendance at such association or conference, then the institution should pay salary when in attendance, but bear none of the expenses of the trip, all of which should be borne by the individual concerned.

Although at wide variance, stringent regulations requiring receipted vouchers for expenditures made during travel are enforced by most of the institutions. There are three colleges which require receipts for travel expenditures of every character. The travel rules of 15 institutions provide that receipted vouchers must be secured for all items above $1, while in one other the minimum is fixed at $1.50. Two require affidavits with expense accounts. Receipts for railroad transportation are required in 7 cases, for Pullman fares in 10, for hotel bills in 13, and for meals in 2. No requirements as to receipts have been adopted by six land-grant colleges.

Travel allowances for the use of privately owned automobiles on official business are made by 39 institutions. Specific authority is required for such travel, the approval of the president being necessary in 33 cases, the chief business officer in 3, and the dean in 3.

Allowances for travel by private automobiles are on a mileage basis in 36 institutions, the amount being 5 cents per mile in 2 institutions, 6 cents in 3, 7 cents in 7, 8 cents in 6, 9 cents in 1, 10 cents in 7, and between 4 and 10 cents in 8. Two land-grant colleges make monthly allowances. In one of them from $5 to $15 per month is allowed and in the other from $25 to $50 per month. There are 3 institutions which allow full railroad fare for travel in private automobiles. No procedure for checking the mileage has been developed in a number of the institutions. At others the mileage meters are carefully checked and the distances verified by road maps.

The reports show that only 18 institutions advance traveling expenses to administrative officers and faculty members prior to departure on trips. In the remainder the practice has not been adopted. No reason seems to exist why costs of travel should not be advanced, particularly where staff members are compelled to do a considerable amount of traveling on official business.

Central Employment and Civil Service

Proper business administration requires that there be a central control over employment and discharge of clerical, office help, and other service employees. The distribution of such authority among a large number of administrative and educational officers leads to disorganized practices and to confusion. It is preferable that control be concentrated in the business office. An examination of the reports, however, discloses that in only 17 land-grant colleges is central control maintained over employment. In view of the large number of clerks, stenographers, and other types of service workers employed, it would seem that sound business principles would necessitate the establishment of a central authority responsible for their employment and discharge.

Whether due to the failure to adopt a system of central control or not, the reports show that State civil service laws have been made applicable to six land-grant institutions. The classes of employees included under the civil service regulations comprise administrative officers at 3 institutions, clerks and stenographers at 6, library staff at 2, and other service employees at 6. In nearly all the cases the rules are so rigid as to permit practically no exceptions. One institution is allowed to employ three administrative officers not under civil service and in another the law is not applicable to the secretaries of the president and the deans. At none is the teaching staff affected.

Except in the case of one institution, no noticeable difference in morale and efficiency has resulted from the placing of employees of land-grant institutions under State civil service, according to the returns. The University of Wisconsin, however, reports an improvement in both respects, while the Colorado Agricultural College indicates that a slightly increased tenure of office has occurred.

Retirement and Disability Compensation

An important instrument for the development of high standards of efficiency and morale is a retirement or pension system. Protected against economic risk and assured of annuities in old age, members of the faculty can generally be depended upon to give their best services.

Although many of the land-grant colleges have been established for 25 or more years, the number in which old age or retirement funds have been provided for the protection of teachers and other members of the staff is extremely limited. Reports indicate that in only 14 institutions have retirement or disability systems been established, of which 8 are of State origin, 3 of institutional origin, and 3 of private endowment origin. An additional college is just completing plans for the inauguration of a retirement system in conjunction with the State university.

The institutions where a State pension retirement service is in operation are the Connecticut Agricultural College, University of Hawaii, Massachusetts Agricultural College, Rutgers University, North Dakota Agricultural College, Ohio State University, Rhode Island State College, and the University of Wisconsin. Various plans have been adopted. In three States the beneficiaries are limited to the teachers, in three both teachers and other institutional employees are included, and in one employees only. Any old age or disability service, which does not provide for all types of officials and employees of the modern institution of higher learning, is incomplete and should be amended. Contributions to the retirement fund are obligatory in six States, while they are optional in the other two States. Fifty per cent of the principal sum is contributed by beneficiaries and 50 per cent by the State in most instances. One institution, however, pays 50 per cent and the teachers the other 50 per cent, the State not contributing directly to the support of the system. Another university reports that the pension service is based on the plan of assessments against the salaries of teachers and against county tuition funds of 10 cents for each child of school age. The Rhode Island State College teachers make no contributions, the State paying the entire pension. Levies against the salaries of the beneficiaries in the different States range from 1 to 5 per cent, the contributions amounting to 1 per cent of the annual salary for the first 10 years and 2 per cent for the next 25 years at 1 institution, 4 per cent at 1, and 5 per cent at 3. In another the size of the contribution is dependent upon sex, age, and nature of employment. Refunds with 4 per cent

interest are made in the event of withdrawals in practically all of the State teachers' retirement systems.

Age and disability retirement funds organized by the institutions or through private endowment are operated on the same basis as State pension services. The three land-grant colleges, which have institutional retirement systems are the Colorado Agricultural College, the Massachusetts Institute of Technology, and the University of Illinois. Known as the contributory retirement annuity, the system at the Colorado Agricultural College is voluntary and applies only to faculty members who have attained the rank of assistant professor or over. The fund is made up of contributions by the beneficiaries of 5 per cent of their salaries, the institution contributing a similar amount. The age of retirement is 65, the maximum annuity being $1,800 annually. At the Massachusetts Institute of Technology, a similar pension plan is in operation except that it includes both members of the teaching staff and administrative officers. In establishing the system, the institute contributed the flat sum of $25,000 and has since paid an amount equal to the payments of the beneficiaries into the fund. The maximum annuity is $1,200. Retirement of all members of the staff and employees in service at the University of Illinois for 15 years or more is optional at 65 and obligatory at 68. The amount of pension is 50 per cent of salary with a maximum of $3,000. Payment of the annuities is provided by annual appropriation. Of the three land-grant colleges where retirement funds are provided through private endowment, Purdue University and the University of Minnesota have taken advantage of the Carnegie Foundation retirement allowance. A special retirement system at the third, Cornell University, has been established through the Russel H. Sage pension fund. Only full professors and certain administrative officers are eligible, the annual contributions varying according to the age of beneficiaries at the time of application.

No retirement or pension fund should be allowed to operate long without an actuarial study being made to determine its soundness. In the case of one land-grant college with an institutional retirement system, such a study has not been made, according to the returns. A similar situation is found with regard to two State pension systems, while another institution failed to report on the point. Actuarial studies have been made to determine the integrity of the retirement funds in the remainder.

A statute providing for a workmen's compensation system has been enacted by 33 of the States. The law is applicable to the land-grant colleges in 24 of them, all members of the faculty, officers, and workers being entitled to compensation in 17 and only service

employees in 7. There are nine States with workmen's compensation laws which are not applicable to their higher educational institutions. Two State universities report that they carry compensation insurance for the benefit of their staffs and workers. In some instances compensation payment is based on disability due to accident and in others it covers any kind of injury occurring in the performance of duty.

Commencement

The expenses of commencement exercises are met from various sources in the different land-grant colleges. Twenty-seven report that the entire cost is paid with institutional funds. At nine institutions the expenses are met by both graduation fees and institutional funds. There are seven others where the complete cost is defrayed by fees assessed against the students. Diplomas are standardized as to size in 35 of the institutions, while the returns of 6 indicate that no attempt has been made at standardization. The material consists of genuine parchment in all cases except four where paper is used for the diplomas. Total cost of a single diploma, engrossed, tied, and ready for delivery, varies from $1.35 to $6 in the different colleges.

Honorariums of considerable amount are paid commencement speakers. One institution pays from $250 to $500, another $300, four $200, eight $150, eleven $100, two $75, and three $50. It is the custom with 10 colleagues not to pay any honorarium.

Unit or Per Capita Cost Figures

Compilation of unit or per capita cost figures by the land-grant colleges is of unquestioned advantage in the preparation of budgets, in the comparison of expenses of the various departments, and in the analysis of expenditures for different years. Every institution, therefore, should install a system of cost accounting.

The whole problem of securing unit instructional costs is complicated. Any plan of the mere division of the total fiscal expenditures by the number of students enrolled is fallacious and furnishes figures of no real value. In order to develop a plan of obtaining such data, it is essential that an adequate system of keeping financial records be established, which, as already pointed out, has been neglected in a number of the institutions. There must be a suitable classification of expenditures, complete statistics on enrollments, a record of the distribution of time and services of every member of the staff, and complete data on the use of space in the buildings.

Of fundamental importance is an accounting system so complete in its scope as to provide classifications of all varieties of expenditures since the compilation of unit or per capita costs is dependent entirely upon expenditures. Segregated expenditures should be kept for sal-

aries, other operation expense, and additions to equipment for each instructional department; for the operation of and current additions of books to the library which serves the departments; for the operation and maintenance of the physical plant; for administrative and general expenses of the departments and colleges; for services other than instruction, such as research; for self-supporting service enterprises and for capital additions to the physical plant. Only with an extensive classification of expenditures is it possible to make a computation of unit expense on a satisfactory basis.

Proper statistics on enrollment of students are required for the purpose of ascertaining whether service is actually rendered. For instance, no student should be included who withdraws after the first few days of instruction. Short courses, extension, and correspondence students should be eliminated and included under a separate unit-cost analysis. The basis of the computation should be the number of students actually attending each college or school, the number of students enrolled in each course, and the distribution of enrollment of regular students in contradistinction to correspondence or night-school students. Records must likewise be maintained with accuracy on the distribution of the time and work of the members of the faculty and the staff. Information must be available upon the amount of time devoted by every teacher to administration, to teaching, to research, and other duties. In computation of unit costs, the time and costs of the services of each member must be allocated to the department for which the work is performed. Data on the use of the building space are also necessary. There must be complete records on the number of square feet of floor space in each building, the number of square feet occupied exclusively by each department, the number of hours and amount of space utilized by each department during each semester or quarter, the purpose for which the space is used, and the costs of operation of the buildings figured on a basis of the amount of space.

With such classifications of expenditures, statistical records, and methods of classifying accounts, unit or per capita costs may be obtained for practically every activity of the institution. Such computations may be made on a basis of the student credit hour representing one credit earned by one student in a department for a fixed period, of the semester or quarter credit hour comprising the amount of instruction given for each credit hour, or of the student or per capita which represents one person enrolled as a regular student in a college or curriculum. The expense of each course, of each curriculum, of each department, of each college, the per capita expense of each student in each department or college may also be calculated.

The land-grant colleges were requested to submit information on the methods employed in the determination of unit or per capita costs. Only 15 institutions made returns. The remainder apparently have not attempted to prepare in a systematic manner figures and data on instructional cost accounting. According to reports received, the systems adopted are fairly satisfactory at 12 institutions, while only partial cost computations are made in 3 other instances. The unit used was the student credit hour in 6, the clock hour in 6, and both the student credit hour and the clock hour in 3. The inability of nine of the institutions to analyze in detail unit costs is due to their failure to keep statistical records of service of their staff members in instruction, research, and extension. According to the returns, but 9 of the 15 institutions included institutional overhead in calculating unit or per capita expenses. The most complete systems for the determination of unit costs have been developed by the Pennsylvania State College, Iowa State College, and the University of Illinois.

A division of opinion exists as to the soundness of compilations on unit or per capita costs in institutions of higher learning. The undertaking is involved in complexity and the results should not, under present conditions, be utilized for making comparisons between different institutions. Little doubt exists, however, that comparisons on the basis of unit costs between similar departments in the same institution and between different years for the same department are of special significance. The figures are of particular value also in budget making. In the smaller colleges where widely diverse and complex educational activities have not been established the compilation of unit or per capita costs is greatly simplified providing essential records are maintained. Yet it is in the case of these very institutions that no systems whatever have been adopted.

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Chapter V.—Auxiliary Enterprises and Service Departments

The modern land-grant institution is no longer a small isolated educational unit. With the establishment of a variety of colleges and schools of instruction, with the expansion of curricula and subject-matter fields, with the growth of enrollments and the upbuilding of a large plant, it has become a teeming community presenting social, human, and physical needs that must be met. As a result the necessity has arisen for the operation of diverse auxiliary enterprises, service departments, and supervised organizations supplementary to the regular educational organization. Residence and dining halls for the housing and feeding of students, laundries to provide a regular laundry service, bookstores where school supplies may be purchased, and post offices for the handling of the mail of the students and faculty have been established and are operated on the campus.

To carry out the expanding educational program effectively has required the maintenance of stenographic bureaus to accommodate the faculty, of photographic establishments, of radio stations, and of publicity and news services. Printing and binding have become important requirements, making it advisable for some institutions to operate their own printing plants. The purchase of immense amounts of supplies necessitating storage facilities has resulted in the establishment of stores and receiving stations for their receipt and distribution. Due to the emphasis placed on the teaching of science, finely equipped laboratories have been installed in the different institutions. Shops for the repair of scientific equipment must therefore be maintained.

Social life of both students and faculty is a significant phase of campus activities. For its promotion student unions, faculty clubs, fraternities, publications, dramatic, musical, class and athletic organizations have been formed. Capital investments of considerable size have been made in these enterprises and the annual operating receipts and disbursements reach large figures. While the organizations are in a sense separate from the educational activities of the institutions, they are important elements of the educational life and are or should be under the direct and immediate supervision of institutional authorities.

It is not proposed in this chapter to deal with general policies relative to auxiliary enterprises, service departments, and extracurricular organizations in the land-grant colleges. Another part of

the report will discuss these problems. This chapter will be confined to a discussion of their business administration and supervision, methods of control, handling of accounts, operating costs, and the financing of capital investments made for their benefit.

In a number of institutions it has been found that an unsatisfactory system of financial supervision and administration of these enterprises and services has been adopted. Control has been vested in officers or committees engaged with other duties, who have neither the time, training, nor inclination to perform such assignments, and also in private or semiprivate managements with unrestricted authority. A more or less chaotic condition, therefore, exists. In other institutions failure to proceed upon sound business principles in the handling of these enterprises results in wasteful administration.

On the other hand the highest efficiency prevails in the financial administration of these projects in the case of some institutions. Fiscal control and supervision have been lodged in the business officer. The collection of bills and disbursement of income is concentrated in a central agency. There is centralized purchasing so that supplies may be bought in bulk and pooled with the other purchases of the university. Audits of accounts are made at regular intervals. Adequate measures have likewise been taken for the financing of improvements, replacements, and new construction with provisions for the proper liquidation of indebtedness, if any. Sound business methods have been installed. A modern business organization has been created. It is the purpose of this portion of the survey report to discuss separately each of the different types of auxiliary enterprises, service departments, and supervised organizations.

Residence and Dining Halls

Residence and dining halls in public higher educational institutions should not be operated for profit. They should not be operated at a loss. Nor should it be necessary usually for the institutions to subsidize them. They should be self-sustaining and conducted on such a business basis that the regular annual income will cover the cost of operation, maintenance, interest charges, and at the same time provide a sinking fund for the gradual repayment of the capital investment or replacement of facilities as that becomes necessary.

The failure in the past to adopt definite policies for financial administration and fiscal supervision may be in part responsible for the shortage of residence halls in the land-grant colleges of the United States. Of the 44 institutions reporting on this subject, 2 institutions have no residence halls of any type, and in the case of 4 institutions the number of students accommodated is so small as to be practically negligible. There are 32 institutions with residence halls for men and 33 for women.

The total enrollment in the 44 land-grant colleges for 1927–28 was 136,657 students. The total housed in residence halls was 21,794, or only 15.9 per cent. An examination of the returns of the individual colleges shows that but 7 colleges are able to accommodate in excess of 50 per cent of their student body in residence halls, while 15 institutions have campus house facilities for less than 10 per cent of their students. In Table 22 is presented the total enrollment, number of students by sex housed in residence halls, with percentages for the different land-grant institutions reporting.

TABLE 22.—*Number of students housed in residence halls in land-grant institutions*

Institution	Total enrollment, 1927–28	Number housed in residence halls—			Per cent housed in residence halls
		Men	Women	Total	
1	2	3	4	5	6
Alabama Polytechnic Institute	1,614	100	40	140	8.6
Alaska Agricultural College and School of Mines	83	61	24	85	100
University of Arizona	2,033	184	145	329	16.1
Colorado Agricultural College	1,344				
Connecticut Agricultural College	528	261	148	409	77.4
University of Florida	2,077	371		371	17.8
Georgia State College of Agriculture	1,091	265	165	430	39.4
University of Hawaii	672	14	17	31	4.6
University of Idaho	1,912	240	240	480	25.1
University of Illinois	12,738		349	349	2.7
Purdue University	3,830	153		153	3.9
Iowa State College	4,391		741	741	16.8
Kansas State Agricultural College	3,197		129	129	4.0
University of Kentucky	2,791	96	283	[1] 379	13.5
Louisiana State University	1,970			[1] 845	42.8
University of Maryland	2,717			[1] 322	11.8
Massachusetts Agricultural College	593	66	106	172	29.0
Massachusetts Institute of Technology	2,712	426		426	15.7
Michigan State College	3,044	200	275	475	15.6
University of Minnesota	12,552	209	374	583	4.6
Mississippi Agricultural and Mechanical College	1,431	1,360		1,360	95.0
University of Missouri	4,780		32	32	.6
Montana State College	1,011		71	71	7.0
University of Nebraska	6,957				
University of New Hampshire	1,658	496	259	755	45.5
Rutgers University	2,685	249	867	1,116	41.5
Cornell University	5,671	480	549	1,029	18.1
North Carolina State College	1,541	982		982	63.7
North Dakota Agricultural College	1,219		65	65	5.3
Ohio State University	11,222		429	429	3.8
Oklahoma Agricultural and Mechanical College	2,813	241	265	506	17.9
Oregon Agricultural College	3,818	344	501	845	22.1
Pennsylvania State College	4,037	183	241	424	10.5
Rhode Island State College	536	394	115	509	94.4
Clemson Agricultural College	1,212	1,200		1,200	99.0
South Dakota State College	917	134	176	310	33.8
University of Tennessee	3,114	26	18	44	1.4
Agricultural and Mechanical College of Texas	2,548	1,957		1,957	76.8
Agricultural College of Utah	1,222		50	50	4.0
University of Vermont	1,235	90	114	204	16.5
Virginia Agricultural and Mechanical College	1,266	1,002	12	1,014	80.0
State College of Washington	3,002	459	493	952	31.7
University of Wisconsin	9,672	500	276	776	8.0
University of Wyoming	1,203	115	200	315	26.1
Total	136,659	12,858	7,769	21,794	15.9

[1] Not divided as to sex.

As may be seen by the figures contained in this table, a real need exists for the construction of additional residence halls in many of the land-grant institutions. Enrollments have increased steadily during the past decade. It is improbable that they will decline in the future. The situation, therefore, will not right itself. The practice adopted by many executives of waiting for State legislatures to make appropriations for the building of residence halls will not solve the problem. Residence and dining halls are business enterprises. They may in many instances be made revenue producing. The opportunity exists frequently for their construction without the use of public funds.

That only a few land-grant institutions have taken advantage of independent financing of the cost of such buildings is indicated by the returns received. The reports show that 33 colleges are depending upon State appropriations for the construction of residence and dining halls. Only 8 of the 44 colleges reporting have secured the enactment of a general law giving them the right to construct new residence halls, including additions, through the issuance of bonds or special corporation financing.

The institutions are Purdue University, Iowa State College, University of Kentucky, University of Minnesota,[1] Rutgers University, Oregon Agricultural College, Pennsylvania State College, and the State College of Washington.

There are five other colleges that have secured special legislation on different occasions to construct particular residence and dining halls through bond issues, the law applying only to these specified cases.

The University of Idaho, Michigan State College, Mississippi Agricultural and Mechanical College, Oklahoma Agricultural and Mechanical College, and Virginia Polytechnic Institute comprise the list.

Confronted with lack of appropriations from the State legislature several institutions have resorted to other methods. The State College of Washington has defrayed the cost of constructing residence and dining halls through the accumulation of a sinking fund set aside for that purpose. The University of Wisconsin has adopted the plan of organizing a nonprofit-sharing corporation which has constructed several men's halls with funds derived in part from the institution's revolving fund and in part from loans. The corporation leases the dormitories to the board of regents after construction has been completed. The University of Illinois and Rutgers University report that such buildings have been erected on their campuses from the actual earnings of the residence and dining halls.

[1] An implied constitutional right is now being adjudicated in the Supreme Court of Minnesota.

Another method of financing the initial construction costs of residence and dining halls is through gifts. The returns show that nine institutions have been so fortunate as to receive donations for this purpose.

The colleges include: Georgia State Agricultural College, Purdue University, Massachusetts Institute of Technology, University of New Hampshire, Rutgers University, Cornell University, Pennsylvania State College, University of Tennessee, and the University of Vermont.

It is obvious, however, that public institutions find quite generally that no definite building program nor organized system of financing can be effectively pursued that is dependent upon so variable a source as gifts and donations.

The conviction is growing that State appropriations for the support of higher educational institutions should be limited largely to educational purposes. The requirements of the land-grant colleges for larger teaching staffs, higher salaries for members of their faculty, and better educational equipment more than offset the increases in appropriations now being received from the State. Public funds secured for building construction connected with auxiliary enterprises have the direct effect, therefore, in many instances of reducing the appropriations available for educational needs.

As already pointed out, sound business principles should be applied to the operation of these enterprises. The revenues derived from them should be sufficient to cover the ultimate liquidation of the capital investment. The successful financial operation of residence and dining halls depends in a large measure upon centralization of responsibility for their management. The business officer should control all financial operations, including collection of accounts, payment of bills, keeping of books, and auditing of accounts. He should also have authority to fix the prices charged for rooms and meals in order that the books may be balanced and that there may be no deficit at the end of the year. Because of the many problems involved in the management of residence halls, their physical operation should be vested in officers competent for this duty rather than in those whose functions primarily concern the social and intellectual association of students who live in the residences.

Due to the fact that in some colleges dining halls are operated in residence halls and under the same management, while in others separate dining halls outside of the dormitories are conducted under institutional jurisdiction, it is difficult to present a clear picture of the methods of control. According to the returns received, the fiscal affairs of the residence halls are handled by the central business officer in 35 institutions to a more or less degree, by the dormitory management in 2 institutions, and by means of audits in 8 institutions. In the case of dining halls outside of the dormitories, a dif-

ferent situation is found. The reports show that 15 are under the supervision of the business officer, 7 under the home economics department, 3 under separate divisions, and in 1 college the dining hall is privately rented. The accounting is under the direction of the residence hall management in 6 colleges and under the direction of the central business officer in the 38 other colleges making returns.

While these figures indicate at least a partial control of the finances of residence and dining halls by the business officer, there is considerable conflict of authority and division of responsibility in the different institutions. In the returns dealing with the question of general administrative supervision, including the direction of certain phases of financial policy, it was found that the business officer held final responsibility in 18 colleges. Of the remainder, the authority was vested in a variety of officials. In 7 institutions the president was the responsible head, in 3 institutions a committee, in 14 the dean of women over women's halls and in 2 the dean of men over men's halls, in 3 the physical plant officer, and in 1 the military commandant.

In order to operate residence and dining halls on a truly self-sustaining basis, the charge for rooms and meals must be sufficient to meet all current expenses and at the same time amortize the costs of capital investments. An examination of the returns reveals the fact that the charges are so extremely low in a number of institutions as to be merely nominal. This applies particularly to residence halls. The charges in the 40 institutions reporting on this item range from $1 up to $5.50 per week. There are 13 in which the charge for dormitories amounts to only $1 or $2 per week, while in 14 others the charge is from $2 to $3 per week. It is evident that with excessively low charges for rooms the accumulation of a surplus or the creation of a sinking fund for construction of new residence halls is an impossibility. In several of the institutions having low charges, the dormitories were originally constructed through public funds and the institutions are waiting for additional appropriations from the State legislatures for much-needed new buildings to house their students, no attempt being made to place the residence halls upon a self-supporting and businesslike basis. In the 13 other institutions reporting, the charge for rooms is from $3 to $5.50 per week. This list includes most of the colleges where the dormitories have been constructed through loans or bond issues with provision for their future liquidation from the regular income.

Similar variation exists with regard to the weekly rate charged for meals. The lowest charge found in the 38 colleges making return was $4.95 per week. In five institutions the charge for meals was approximately $5 per week, in 11 colleges from $5 to $6 per week,

and in 13 from $6 to $7 per week. The charge for meals in the remaining six institutions was from $7 to $10 per week, of which two were at the rate of $10 per week. With the present high cost of food supplies and labor it is evident that college dining halls making low weekly charges for meals can not under the most favorable circumstances secure enough revenue to cover regular operating expenses, replacements, and repairs, including overhead.

An item of vital importance to the successful operation of dining halls is the purchase of food supplies. Returns indicate that there is a considerable divergency in the practices at the different institutions. Because of the obvious advantages of having a central officer responsible for all buying on the campus, the institutional purchasing agent should have supervision of the purchase of food supplies. Twenty of the land-grant institutions follow this practice. An arrangement has been made in five institutions where the dormitory management and the institutional purchasing agent cooperate. There are, however, 12 institutions where the dormitory management has exclusive charge of the purchase of food supplies. In the case of three others, the buying is under the direct control of the State purchasing agent. Extreme doubt exists whether the highest efficiency can be attained in purchasing supplies through this channel. The State purchasing agent is located at the State capital, frequently a long distance from the college. He is uninformed concerning local markets and out of touch with local prices and therefore unable to take advantage of opportunities for cheap purchasing in the home communities.

Of the 41 institutions reporting on this item, 4 are compelled to subsidize residence and dining halls from institutional funds. It is not difficult to discover the reason. In one the charge for rooms is $1.50 per week and for meals $5 per week. In another the charge for rooms is $1.75 per week and $7 for meals, while the charges in the third are $2 per week for rooms and $6 for meals. The fourth institution failed to furnish information on the amount charged for rooms and meals. Thirty-two of the institutions report a net surplus from the operation of residence halls, exclusive of dining halls, even at the low rate charged for rooms. This may be accounted for through the fact that the initial cost of the buildings came from State appropriations. The surplus is disposed of in several ways. In the case of 15 institutions, it is utilized for replacement, while in 12 it is turned into the institution's treasury. Three institutions, which have erected their dormitories through the issuance of bonds and through loans, use the surplus for the retirement of the debt. The other two institutions return it to the State treasury.

Laundries

The operation of a laundry on a modern college campus involves a capital investment of considerable size. It is only justified when actual financial savings result to the institution or when on account of the isolated location of the institution laundry service is not available from commercial concerns.

According to the returns received by the bureau 15 land-grant colleges maintain laundries. The reports on the different phases of operation and management were so inadequate and the data so lacking in detail that a satisfactory appraisal is impossible. In several instances, the institutions were unable apparently to furnish information on capital investment, operating costs, and annual output indicating that accurate records were not being kept by them concerning the work of these enterprises.

But 13 of the 15 institutions supplied figures on capital investments in their laundry plants. The total amounted to $238,000. Some of the plants are small. There were 2 valued between $1,000 and $5,000 and 3 between $5,000 and $10,000, while the returns show 5 with capital investments ranging between $10,000 and $20,000. The other 3 plants are large and represent important capital investments. The value of 2 of them was fixed between $30,000 and $40,000, and the largest plant at $61,000.

That 3 of the 15 institutions failed to furnish figures on the total annual operating costs for the last fiscal year tends to indicate that their laundries are not being conducted in a business-like manner. The total annual operating costs, including salaries and supplies, for the different institutions varies from $780 to $37,700 annually.

Of the institutions submitting returns on this point, 1 institution reported the operating cost at $780 annually, 1 from $4,000 to $5,000, 3 from $5,000 to $10,000, 3 from $10,000 to $20,000, 2 from $20,000 to $30,000, and 2 from $30,000 to $37,700.

A fundamental element of any business enterprise is the annual production or volume of output. Without data on this subject, it is impossible to ascertain whether the plant is being operated at full capacity, whether there is lost motion and wasteful practices, and whether efficient results are being obtained from the labor employed. According to the reports three institutions kept no records on annual production and three others failed to give any figures. In the case of 9 other colleges, 3 maintained complete records on the annual volume of output of the laundries both in pounds and pieces, 1 in pounds only, and 5 in the number of pieces turned out each year.

It is preferable that the laundries be conducted upon revolving funds, separate and distinct from the regular financing of the institution. Seven institutions have adopted this practice. Laundries in four institutions are operated as a part of the institutional overhead and in the case of four others, no information was given as to the method employed. Only a few of the institutions were able to

show definitely whether the prices charged by their own laundries were less than those of outside commercial laundries. At the six institutions furnishing comparisons between laundry charges of the institutional plant and of local commercial companies, the charges of the institutional plant were from one-third to one-half less than those of private laundries. One college vaguely stated " no definite record, but less."

Bookstore

An important auxiliary and service enterprise is the institutional or cooperative bookstore. No reason, of course, exists for the operation of a store unless books and other college supplies are sold at substantial reductions from the prices charged by local retail dealers with savings to the students and the faculty, or the college is located at such a distance from a community that an institutional bookstore is a necessity.

There are 33 bookstores maintained in land-grant institutions. Of this number 23 are operated by the institutions; 8 others are conducted as cooperative or incorporated enterprises under the control of either the students, committees of the faculty, or jointly by the students, faculty, or board of trustees. In one institution the bookstore is operated by the athletic association. In another it is leased as a concession, while a third is maintained only for the agricultural farm and the engineering college.

Gross sales for the fiscal year ending June 30, 1928, in the 33 bookstores are large, totaling $2,218,000, and ranging between $4,350 to $400,000 for individual institutions.

Of the bookstores under institutional management exclusively, there is 1 with gross sales amounting to $4,350, 4 from $10,000 to $20,000, 3 from $20,000 to $30,000, 2 from $30,000 to $40,000, 4 from $40,000 to $50,000, 3 from $50,000 to $60,000, 1 from $60,000 to $70,000, 2 from $70,000 to $80,000, 2 from $120,000 to $130,000, and 1 is given as $135,000. In the cooperative or corporate bookstores maintained by students, faculty, or through joint control, the gross sales are even higher, 1 being reported at $35,000, 2 at $40,000, the fourth at $91,000, the fifth at $108,000, the sixth at $141,000, the seventh at $250,000, and the eighth at $400,000.

The bookstore with gross sales of $400,000 is a cooperative project conducted just off the campus at the University of Wisconsin by an organization composed of the board of trustees, 2 members of the alumni, 1 faculty member, and 1 student. The figures are estimated in the report from the University of Wisconsin. In the case of the bookstore maintained by the athletic association, the gross sales are $60,100 and in the case of the institution with its bookstore operated by a consessionaire the amount of gross sales was not furnished.

Upon the basis of the returns, the total net profits of all the bookstores maintained in land-grant institutions for the fiscal year ending

June, 1928, amounted to $106,586. One of the colleges reported a net loss of $27, two reported "no profits," and three failed to give data on this point.

In the others operated by the institutions, 1 gave the net profits at $19, 4 from $500 to $1,000, 3 from $1,000 to $2,000, 3 from $2,000 to $3,000, 2 from $3,000 to $4,000, 3 from $4,000 to $5,000, and 1 gave the amount at $7,935.

The net profits of bookstores under joint cooperative or corporate control of students, faculty, or board of trustees ranged from $1,888 to $30,000, 1 not making a return, 2 reporting from $1,500 to $2,000, 3 from $3,000 to $4,000, 1 $10,200, and another $30,000, the latter being an estimate. The bookstore conducted under the auspices of an athletic association made net profits of $7,651 for the fiscal year.

From these figures, it is evident that many of the bookstores are being run on a profitable basis and the institutions are entitled to due credit for their successful financial operation. The disposition of the annual accumulated surplus of the stores, however, is a matter worthy of consideration. Twelve institutions retained the profits in a permanent fund for working capital, one for the erection of a new building and one for the purchase of equipment. In the other cases, the surplus in one institution was turned over to the athletic association to pay in part the salary of a coach, in another it was used to buy library books, in a third it was placed in a student loan fund, and in a fourth it was expended on student activities. A different situation was found in five bookstores conducted on a cooperative or corporate basis either by students, faculty, or under joint control, their profits being redistributed to the student purchasers in the form of refunds. Two other bookstores of this type retained the surplus for the purpose of new building construction while one credited it to working capital and another contributed it to student activities.

The variety of ways, in which the surplus of the bookstores is disposed of requires some comment. It is difficult to understand why the money paid by students for textbooks and other college supplies should be devoted to buying volumes for the library, a service which should receive its support from the State. Somewhat more justification exists for devoting the profits of the bookstores to student or extracurricular activities since it may be supposed that the students that spent their money at the bookstore benefit to some extent from these activities. Earnings may, of course, be used very properly as working capital for the enterprise or as a sinking fund for the erection of a suitable building as is the practice in the majority of the institutions. In the event that they are not needed for these purposes, they may well be returned to the students in reduced prices of books.

The classes of supplies other than textbooks and stationery carried by the bookstores differ among the institutions. There are 11 stores where drawing

instruments are sold, 17 where jewelry is offered for sale, and 5 where clothing is included in the merchandise on the shelves. Twelve bookstores handle confectionery or operate soda fountains, 6 sell drugs, and 2 furniture. Athletic supplies are handled in seven stores. Only two of the institutions require their students to purchase textbooks at the institutional or cooperative store. Three provide for both voluntary and required purchasing while in the remaining 27 institutions, the purchasing is wholly voluntary on the part of the students. One institution failed to report.

Post Office and Mailing Division

On account of the insufficient data submitted it was difficult to ascertain whether adequate mail service is provided in a number of the land-grant institutions. Returns were received from 44 institutions concerning the methods employed for the delivery and dispatch of mail on the campus. Twenty-three maintain a central mailing division, four of which handle only campus mail, while the remainder handle both campus and United States mail. The others have no central mailing office. There are nine institutions with Government contract postal stations and six with Government classified stations. Considering the recent growth of land-grant institutions, in general, it would seem that almost every institution would have found it necessary to establish either a post office or some central agency to look after this important need.

An attempt was made to secure information on the volume of institutional and United States mail handled in the institutions, but only 10 institutions were able to give figures either in pounds or pieces. An effort was also made to learn the number of daily deliveries of both institutional and United States mail. Returns on this question were received from but 11 institutions, the daily institutional deliveries ranging from 2 to 3, and the deliveries of United States mail from 1 to 3 daily. At one of the larger universities, institutional mail is delivered five times daily.

Not a large number of the institutions furnish special mail service in the form of private boxes. Of the 23 institutions having central mailing divisions, private mailing boxes for the convenience of students are maintained in only 10. The rental charge is from 50 cents to $2.40 per year. Private mailing boxes are available for members of the faculty in five institutions, the cost being between $1.50 and $2.40 annually, and for departments of instruction in eight institutions, no charge being made for rental in four cases with a rental cost of from 50 cents to $4 annually in the others.

The organization of the central mailing division varies in size and personnel at the different institutions. Four employ regular postmasters. The force in the other institutions is confined to privately employed clerks, mail carriers, and truck drivers or to part-time student clerks, messengers, and other types of workers. There is a lack of uniformity as regards the administrative officer having juris-

diction over the mailing division. Although this is clearly a duty of the business officer, the responsibility is vested in him at only seven institutions.

In four the president has control over the mailing division and in three the university publishers or editor exercise supervision. The president's secretary is the responsible head in one institution, the purchasing agent in a second, the superintendent of buildings in a third, the secretary of the board of regents in a fourth, and the barracks mailing clerk in a fifth.

Operating costs of the central mailing divisions are financed in several ways. The University of Minnesota pays the entire expense with receipts from box rentals, while four institutions cover the costs partially from receipts from box rentals and partially from institutional overhead. The central mailing division is financed entirely by institutional overhead in 15 other institutions and in 1 through institutional subsidies. There is one university where the college bookstore bears the expense of operation of this division. The institutional bookstore is an independent enterprise conducted on a nonprofit basis for the purpose of selling textbooks. It is difficult to understand why the burden and cost of handling and distributing the mail for an entire institution should be imposed upon it.

The amounts expended for postage by the institutions during the fiscal year ending June, 1928, reached large figures in some instances, although inquiry into this item revealed the fact that a number of institutions keep no record of expenditures for postage. Only 24 out of the 44 institutions reported. The total cost of postage in these 24 institutions was $270,327, the figures including both first and second class mail.

The larger expenditures were in five institutions, one expending $52,347; another $46,250; a third $25,879; a fourth $20,817; and a fifth $20,761. The lowest amounts spent for postage ranged between $500 and $1,000 in two institutions.

Judging from these figures there is little doubt that postage has become no insignificant source of expense in land-grant institutions. It would seem advisable under the circumstances that accurate records be maintained of expenditures for this purpose. Among the 20 institutions not submitting data on the cost of postage, 4 reported "no record" and 15 failed to furnish the information. Another answered "not known—not wanted."

Central Stenographic and Duplicating Bureau

The general growth of land-grant colleges, expansion of curricula, and creation of additional departments of instruction during recent years have made it essential to provide greatly increased stenographic and duplicating service to administrative officers, department heads, and faculty members. The problem is to find the most eco-

nomic method of supplying the facilities and at the same time furnish efficient service. The volume of work in the departments of some colleges and universities is sufficient to warrant the employment of full-time stenographers and duplicating clerks. With others there is only an intermittent amount of work which does not justify the expense of installing equipment or the employment of part-time personnel.

In 17 institutions the problem has been met by the establishment of a central stenographic and duplicating bureau. No apparent effort has been made in the remaining 26 institutions submitting returns to create a centralized agency to handle the work, the service being furnished through departmental divisions or not at all. On account of the long distances between buildings on some university campuses, of course, it is not feasible to provide stenographic service operated from a single office, although this situation does not apply in the case of duplicating service. Cornell University has a central duplicating bureau, but no central stenographic organization.

Varying in size according to the institutional requirements, the number employed in the smaller institutions, which have established central stenographic and duplicating bureaus, ranges from 1 to 3 persons, while one of the larger universities has an organization of 28 workers, another 16, and a third 13 employees. Four institutions use student help entirely.

The method of administration and business procedure is an important element in the efficient operation of a bureau of this type. Being an agency of supply, the division should be properly under the supervision of the business officer, but in only six institutions has it been placed under his control. Four institutions report that the president has direct responsibility for the operation of the bureau, 2 the university editor, 1 the extension division, 1 the college of agriculture, and 1 the college of commerce. In four institutions the bureau is operated as a separate unit. Stenographic and duplicating service is obtained by requisition in all the institutions with one exception where an order from the secretary of the president must be obtained.

The efficient operation of the bureau depends in a large measure upon the plan of determining the priority of work. The question is decided in accordance with the order of the receipt of requisitions in 7 cases, with their importance in 5, and on a basis of the time element in 1 college.

The officer to whom authority over the final determination of priority of work has been assigned was the manager or chief of the bureau in 9 institutions the secretary to the president in 1, the business manager in 1, the publisher in 1, and the purchasing agent in 1. Two institutions reported that no difficulties had ever been encountered over priority and three other institutions furnished no information on the subject.

If the central stenographic and duplicating division is to be conducted on a business basis, it should be self-sustaining and no institutional subsidy should be necessary for its support. To accomplish this object, its operation should be financed through a charge back on the departments to which the service is rendered. Nine institutions conduct the bureau in accordance with this principle. Five other institutions finance the cost of the bureau both through departmental charges and institutional overhead, while four charge the whole cost to institutional overhead.

In the returns received, the institutions discussed the advantages and disadvantages of a central stenographic and duplicating bureau. The great majority of the comments were favorable. Among the advantages cited were the elimination of duplication between departments, saving of time through expeditious handling of work, bulk buying of supplies, service of workers available for entire staff, concentration of entire force on single job when needed, and more punctual and satisfactory service. The disadvantages included the delay incident to filling out requisitions, time lost in distance to central bureau, and errors in use of technical and scientific terms. The use of the dictating machine has greatly facilitated the work of this bureau in a number of the larger institutions.

Photographic and Blue Printing Division

Among the auxiliary services essential to carrying out the heterogeneous educational program of the large modern university are photographs, lantern slides, blue prints, and photostats. Because of the increasing cost of such materials when purchased from private commercial enterprises and because of delays in delivery, a number of institutions have found it advantageous to establish their own plants.

Out of the 44 institutions reporting, 17 are operating central photographic, lantern slide, blue printing, and photostat departments on their campuses.

The division is equipped to handle all four of the services in three institutions while in five institutions its work is confined to photography, lantern slides, and blue printing and in two others to photography, lantern slides, and photostating. There are two institutions where the department does only photography and blue printing and one where the work consists of photography and photostating. The divisions in the other institutions are limited either to photographic, blue print, or photostating work. In the case of two institutions a private photographer is permitted the use of the university buildings.

Although the same principles should apply to the operation of this department as to other auxiliary enterprises, the returns indicate a confusion of administrative practices. The division is under the control of the president in 6 institutions, the business officer in 5, the

editor in 1, the dean of agriculture in 2, the dean of engineering in 2, and under the director of extension in 1.

The most businesslike method of financing the operation of the division is through a revolving fund and not as a part of the regular institutional overhead. According to the returns, eight institutions operate it on a revolving fund basis and four through a combined revolving fund and institutional overhead arrangement. Three universities, however, charge the entire cost of its operation to institutional overhead. There were two colleges that did not make reports on this question.

Due to the lack of records, information on the volume of work done by the central photographic, lantern slide, blue printing, and photostating divisions for the fiscal year of 1928 could be obtained from only nine institutions. The other eight institutions were unable to furnish the data, a situation that should be remedied if recognized business procedure is to be followed. One institution reported the volume of business for the fiscal year at $19,955 and another at $9,641, while in the remainder the amount was between $1,200 and $4,000. The output of two plants was given in terms of sheets of blue printing and plates for photographing and photostating, which ranged as high as 4,200,000 sheets and 17,000 plates. The customary system of requisitioning service from the division is used in all the institutions. Priority of work in most of the institutions is determined by order of the receipt of requisitions or by the superintendent of the division.

Printing and Binding Department

Printing and binding have developed into items of considerable major importance in many of these institutions. To carry out their educational objectives, the publication of research and extension bulletins, special reports, and catalogues has become essential, and stationery and other job orders for the administrative branches must be filled. Binding of books, particularly for the library, is also necessary.

The data collected in the survey indicate that expenditures for printing and binding are large. Although information was not available from all institutions, the reports show that the cost of printing for the fiscal year of 1928–29 at 32 institutions reached the total of $1,009,000. As was the case in other phases of this study some institutions, the number being 11, were unable to furnish the expenditures for printing, the amounts apparently not being segregated. One college included expenditures for printing in its annual expenditures for postage. No returns were received from eight other institutions.

An examination of the amounts expended by the individual land-grant institutions further illustrates the importance that printing and binding has assumed in the annual budgets. The highest expenditure by a single institution for printing during the year was $119,700. The cost of printing in two other institutions ranged between $100,000 and $115,000, and in four institutions between $50,000 and $100,000. There were seven institutions with expenditures varying from $20,000 to $50,000, and eight between $10,000 and $20,000. The lowest expenditure reported by any college was $1,044, while eight other institutions gave the cost of printing between this figure and $10,000.

With such large outlays, the question of control has developed into a significant issue. A tendency for the State governments exists to deprive the institutions of control over their printing. This is due in no small degree to the creation of State budget agencies and to the concentralization of State printing and purchasing in a single State officer. It is also due to the confusion, lack of system, and unbusinesslike methods of procedure prevailing among some of the institutions in the handling of their printing and binding. Methods of control when vested in State agencies and when vested in the institutions must therefore be discussed.

Returns were received from 41 institutions with regard to the problem. Of this number it was found that 33 institutions have complete control over their printing. In the eight other institutions either partial or full State control is exercised. Partial State control exists in the case of three institutions, the State agency supervising expenditures of only the funds appropriated by the State for printing in one institution, the printing of the university catalogue in a second institution, and all printing except emergency and small jobs in a third institution. A fourth university does all its bulletin and book printing under a State contract, although the arrangement is not obligatory.

Little uniformity of practice exists among the State governments which have assumed control over the printing of their land-grant institutions. The officer in charge is the State printer in 2 States, the State purchasing agent in 2 others, a printing board or commission in 2 States, the State department of education in 1, and the State business manager in another. The authority of the State agencies also varies to a marked extent. Three institutions report that the agency has been empowered to determine what shall be printed and in two cases the quantity to be printed. It is evident that no tenable reason can be advanced for such an arrangement whereby the central State officer may serve as a practical censor over the publications of educational institutions. It is doubtful

whether a State officer is better able to determine the quantity of educational literature to be printed than the institution itself.

The variation of control exercised by the State agencies is further exemplified in the returns dealing with the kinds of institutional printing over which jurisdiction is maintained. In the case of five institutions the State agency has supervision over the printing of all stationery, office forms, and small jobs. Printing of catalogues, bulletins, reports, and similar literature of six institutions is under State control. The printing work is done through an outside contract made by the State agency in all the States with one exception. The Kansas Agricultural College reports that the State owns and operates its own plant at which part of the institutional printing is done. Control of the printing however, is retained by the institution. In three States where the State agency maintains control, the printing bills of the institutions are paid out of the general State printing fund, while in the remainder the bills are paid from institutional funds.

The disadvantages to which the institutions are subjected in the control of their printing by a central State agency are so obvious that no necessity exists for enumerating them. Yet the encroachment of State governments is readily comprehended when an examination is made into the methods employed by the institutions in handling their printing. The returns received show diversity of responsibility in the different institutions some of which have dispersed authority over printing among a considerable number of academic and administrative officers instead of concentrating it in a single central head.

Of the 33 institutions controlling their own printing, reports were made by 30. The question of what shall be printed is determined by a conference or committee of deans, department heads, or other administrative officers in 10 institutions; in 5, the president decides the question. The department heads are charged with this responsibility in 5 other institutions, the business manager in 3, the executive officer in 2, the executive assistant in charge of publicity in 2, the institutional purchasing agency in consultation with the State purchasing agent in 1, the operating superintendent of the institutional plant in 1, and the individual department head and university editor jointly in 1.

According to the returns, authority over the determination of the quantity to be printed is not vested in these same officers in many of the institutions. For instance, while the president decides what shall be printed in five institutions, the question of the determination of the quantity to be printed rests with him in only three institutions. Similarly the department heads have responsibility

over the quantity to be printed in 10 institutions, but determine what shall be printed in but 5 cases. At the same time the authority for deciding what shall be printed is vested in a conference or committee of the faculty or other administrative officers in 10 institutions, but in only 5 has the conference or committee been given the power of determining the amount to be printed. Such confusion and conflict of responsibility can only lead to unbusiness-like procedure. This can be rectified only by vesting full authority over printing in a single institutional officer preferably the business manager or comptroller. Otherwise, the movement among State governments to assume control over the printing of State universities and land-grant colleges will in all probability be greatly extended.

There are 15 land-grant institutions that own and operate printing plants on their campus. They represent capital investments ranging from $20,000 to $55,000, the equipment being sufficient to do a greater part, if not all, of the institutional printing. One of the plants does an annual business of $109,000 and two others an annual business of approximately $90,000. The value of the output of the others varies from $16,000 to $40,000. In all the plants a regular full-time force is employed and in several additional part-time student help is utilized. The number ranges from 2 employees in the smaller plants up to as high as 23 in the largest and includes linotype operators, typesetters, compositors, pressmen, stockmen, binders, and other assistants. As in the case of other auxiliary enterprises administrative authority over the printing plant is seldom vested in the same officer at the different institutions.

Five of the institutional plants are under the control of the president, one under joint control of the president and the business manager, and one under joint control of the president and dean. The purchasing agent has supervision in two institutions, the comptroller in one, the board of curators in a third, the university press committee in a fourth, and the operating superintendent of the printing plant is in full authority in a fifth. Two institutions failed to identify the officer having administrative responsibility over their printing plants.

In most of the universities and colleges, the binding is handled in much the same way as the printing. Since only 26 of the 44 institutions filed returns on binding, it is evident that almost one-third of the land-grant colleges do not perform any work of this type. A State central agency has supervision of the binding of three institutions, while the remainder handle their own binding, except in one instance where the binding is done in a State-owned plant. There are five institutions operating their own binding plants, three being large enough to take care of the entire binding work of their institutions. The librarian has charge of the campus bindery at two universities, the director of the press at one, and the two others are a part of the printing plant and under control of its

superintendent. Annual operating costs of the binderies are defrayed through revolving funds at four institutions and through institutional overhead in the fifth case.

Radio Stations

Obviously the advantages or disadvantages of the radio as an educational instrument are not within the scope of a discussion of finance and control. As a number of the land-grant institutions, however, have made large capital investments in broadcasting stations and are paying out considerable sums to defray their annual operating costs, the question arises as to whether from a business point of view the stations are utilized to accomplish the objects for which they were created; whether the types of programs offered are educational in character; and whether the results attained justify the financial outlay. It is proposed first to consider the capital expenditures, including building and equipment, annual operating costs, sources of funds for buildings, equipment, and expense of operation. These are shown in Table 23.

TABLE 23.—*Data on radio stations in land-grant institutions*

Institution located in—	Amount invested in buildings	Amount invested in equipment	Cost of operating last year	Source of funds used for buildings and equipment
1	2	3	4	5
Alabama	----------	$35,000	$8,665	State.
Connecticut	----------	5,000	2,900	
Florida	$15,000	70,000	----------	Special State appropriations.
Georgia	----------	15,000	8,000	College funds.
Illinois	13,000	30,000	1,000	Gift from friend.
Indiana	----------	3,000	2,031	Electric Engineering School, Engineering Experiment station, and Extension funds.
Iowa	----------	23,000	15,000	Extension service in agriculture, Engineering extension service.
Kansas	----------	25,000	5,000	General.
Michigan	----------	26,700	9,600	Institution and gift.
Minnesota	----------	20,000	1,650	State appropriation and loan of equipment from former station now out of existence.
Nebraska	----------	1,000	2,500	
Ohio	----------	10,000	10,000	Engineering equipment funds.
Oregon	----------	25,500	7,000	State resident instructor.
Pennsylvania	1,664	6,874	4,555	Gifts and college.
South Dakota	----------	3,000	2,000	College funds.
Texas	----------	2,500	1,875	Local.
Vermont	----------	1,000	----------	Current.
Virginia (amateur telegraph and telephone station).	----------	1,000	250	Departmental.
Washington	----------	2,395	2,519	Donations and from institution's funds.
Wisconsin	----------	8,000	4,740	State appropriation.

The total capital investment of 20 institutions maintaining their own radio stations amounts to $343,633, of which $313,969 represents investment in equipment and $29,664 in special buildings. The figures, however, do not represent the actual value of facilities used

for this purpose, as 18 institutions make use of academic and campus buildings for the housing of the radio stations. Except in the case of one university where the plant was an outright gift and in the case of another where the equipment was loaned, the cost of constructing and equipping the stations was defrayed almost entirely from State or institutional funds. Five institutions reported that the plants were built with State funds, eight with institutional funds exclusively, and three with gifts and institutional funds. There are two colleges at which the students erected the broadcasting station, the cost of the material being paid by the institution. The annual operating costs of the broadcasting stations total $93,517 for 19 of the 20 institutions. Funds for operation come from several different sources. At four, State funds are used for this purpose. The college extension service defrays the cost in 3 institutions, while returns from 11 institutions indicate that general institutional funds are utilized. No reports were received from three institutions as to where the funds were obtained either for construction or operation of their radio plants.

It is evident from this brief financial review that capital investments and annual operating costs of radio broadcasting stations in the land-grant colleges are significant items of expense. An examination of the types of programs presented, the number of hours weekly on the air, and other methods of utilizing the stations tend to indicate that in a number of the institutions they are not serving very important educational purposes. The reports show that 10 of the institutions are offering no courses of instruction of any character over their radio stations. Of the remainder, seven institutions broadcast such courses, one devoting 50 per cent of the total time on the air to them, another 45 per cent, and two others approximately 10 per cent. Two institutions reported that courses of instruction were broadcast, but failed to give the percentage of time devoted to such use, while four institutions made no report whatever concerning the nature of the programs offered by their stations.

Practically all the institutions broadcast lectures, although the percentage of total broadcasting time given to this phase of work is meager in most of the institutional stations. The time ranges between 17 and 35 per cent. In four cases as much as from 45 to 65 per cent of the radio offerings consist of lectures. Further examination of the programs reveals that only a minor proportion of the time is utilized for the broadcasting of market and weather reports, a valuable service to the farming and agricultural populations, and to the extension departments of the institutions. At four of the stations no market or weather reports are broadcast, while 6 use only between 1 and 10 per cent of the broadcasting time in this manner.

Four stations devote from 15 to 25 per cent of their programs to market and weather reports.

Of special interest is the amount of broadcasting time consumed in entertainment features, such as concerts, athletic events, and similar presentations of semieducational or noneducational nature. Eight institutions report that between 50 and 65 per cent of their entire radio programs is so utilized. In three other instiutions, entertainment makes up between 40 and 50 per cent of the total time on the air, and in two between 20 and 40 per cent, while in three institutions it has been reduced to less than 20 per cent. In the case of only one university is the radio program of the broadcasting station limited exclusively to educational offerings. The returns show also that the plants are operated for a relatively short time each week. Three stations are on the air three hours or less a week and five stations between three and seven hours. Four institutions broadcast between 12 and 18 hours, while the hours of operation of four which utilize their stations to a greater extent range from 20 to 35 hours.

Various administrative officers exercise control over the radio broadcasting stations. The station is under the supervision of the president in nine universities and under the joint control of the president and business officer in the case of another institution. A special committee controls the station in 2 institutions, the dean of extension in 2, of engineering in two, the agricultural and engineering extention service jointly in one, the superintendent of buildings and grounds in one, the business manager in one, and the operating superintendent of the plant in one. At three institutions the station is affiliated with a chain and in eight land-grant colleges not owning their own stations radio educational service is provided through private stations. The Alabama Polytechnic Institute operates its station in cooperation with two other State institutions of higher learning.

Publicity and News Bureau, Advertising

All land-grant institutions are rendering service of incalculable value to the people of their States. Unless this service is placed before the people by the press, magazines, and other publications, the public can not most completely take advantage of the opportunities offered.

To attain this end, land-grant colleges may well maintain an organized publicity or news bureau in charge of a trained editor, experienced in the journalistic and magazine field. All of the publicity of the institution should be concentrated in a central office. Through such a bureau should be issued news articles of activities in education, industry, and agriculture to the metropolitan and rural newspapers. In order to create a demand for them public announcements should be made of bulletins published by the institution. In addition, syndicate, feature, magazine, and pictorial articles, wherever possible, should be furnished on academic, economic, and scientific progress.

Returns received from 43 land-grant institutions show that 39 of them are maintaining publicity and news offices. It is found, however, that some of the bureaus center their attention on student activities, routine campus events, and propaganda on college athletics rather than upon the educational accomplishments of the institution. In a number of cases the reports indicate that no central news bureau actually exists, but that the handling of the publicity has been delegated to committees, part-time teachers, alumni representatives, and administrative officers whose time is consumed to a large extent with other duties. On the other hand, the bureaus at other institutions are efficiently organized and headed by full-time directors trained in the editorial and newspaper field. The type of publicity produced by the latter services is of the highest value in presenting to the public the institutional achievements in the different branches of science, learning, and service.

In 29 land-grant colleges the publicity or news bureau is in charge of a director or editor, who devotes his entire time to the work. At some of the institutions, the bureau has been expanded into an organization of considerable size.

The report shows that in 12 bureaus the director has an assistant and in 9 at least two additional full-time employees make up the personnel, while in 12 others the staff is limited to only one additional employee. Student clerks are employed in a number of the news bureaus.

In order to secure the services of an experienced editor, it has been necessary in some instances to pay salaries as high as those paid the deans and full professors.

An examination of the bureaus in which no director or editor is employed reveals such confused procedure and disorganized arrangements for handling publicity that it is difficult to see how satisfactory results can be secured. The publicity in one institution is prepared and distributed from five different sources. In two others the handling of the publicity has been assigned to two or more teaching staff members on a part-time basis. The alumni secretary performs the work in another university, the members of the faculty of the school of journalism in a second, and the executive assistant in a third. Instead of establishing a central bureau, the publicity for the whole institution has been turned over to divisional offices in several institutions, the extension editor handling it in two cases, the director of publications in one, and the agricultural publicity office in another.

Information is made public largely through news articles written in the publicity and news bureaus and distributed both to the local newspapers and national press associations. Twenty-five institutions reported that news stories are furnished local newspapers and 21 reported that similar articles were supplied national press

associations. The returns reveal that a number of bureaus maintain feature and pictorial services with photographs, matrices, and illustrations, while in others material is collected and made available for magazine articles. Editorial work for members of the staff and departmental bulletins is also done. Although an attempt was made to secure records of news items and other articles prepared by the bureaus, only a few institutions submitted data. The reports received point to the fact that an enormous volume of publicity is written and distributed.

One bureau reported that from 50 to 75 stories a month were prepared and sent to 118 newspapers; another issued 1,076 news items of general interest and 1,194 agricultural items; a third, 250 stories for weekly papers, 500 to daily papers, 150 to national press associations, and 100 to farm papers; a fourth, 200,000 lines or 1,000 columns; a fifth, 3,807 stories, of which 1,034 were on agriculture, 402 on engineering, and 233 related to the general university; and a sixth, 1,725 items, of which 725 were included on a clip sheet for weekly newspapers.

That college athletics and sports occupy much of the time of the publicity offices is evidenced by the returns. One institution serves 40 State papers regularly with college athletic news, another issued 607 news releases on sports in the course of a year, a third distributed 1,194 athletic news items, and the product of a fourth publicity bureau was 2,557 stories on sports.

As the president is responsible for institutional policies, it is vitally important that he maintain direct control over all publicity. This is the plan adopted in 30 institutions, while in 3 others the president and either the dean, experiment station or extension director jointly supervise such service. The board of curators permits no publicity to be issued without its approval in one institution. In the others filing returns the executive assistant has responsibility for the publicity at one college, the director of extension at two, and five administrative officers at one.

Few of the land-grant colleges conduct systematic programs of paid advertising, only five institutions indicating such practice. There are, however, eight other institutions that report annual expenditures for this purpose ranging from $300 to $6,800 annually. The total expended for advertising by all the institutions in the fiscal year of 1928 amounted to $31,992. Several institutions, although expending funds for advertising, were unable to furnish the figures. In 12 cases the funds for advertising came from State appropriations and in the remainder the cost was charged to institutional overhead.

Shops for Repair of Scientific Equipment

The efficient teaching of the sciences depends in a large measure on the maintenance of laboratories containing the latest modern apparatus ready for immediate use of instructor and student. Laboratory facilities, therefore, must be kept in an excellent state of repair. The great majority of land-grant institutions have made little or no provision for this work. Except for minor repairs it is

necessary to return apparatus to the manufacturers. Fifteen institutions, however, have established their own shops in charge of specially trained technicians to handle the work of repairing and, in some cases, manufacturing laboratory equipment. Of this number, 5 institutions operate a central repair shop for all the departments of science, while the remaining 10 institutions have smaller shops in individual departments. Because of the administrative problem involved the two types of repair shops will be treated separately.

The advantages of the operation of a central repair shop are obvious. Overhead expenses may be reduced, duplication of equipment and tools eliminated, saving of time and labor effected, and more prompt service rendered.

The institutions that report having established central repair shops are the Georgia State College of Agriculture, University of Idaho, University of Minnesota, University of Missouri, and Pennsylvania State College, the latter being in the process of organization.

At the University of Wisconsin a central shop is maintained in the engineering department which is available to all laboratories on the campus in addition to the individual departmental shops. Administrative responsibility over the central repair shop is vested in the business officer in three institutions and in the head of the engineering division in another case. One university did not give information on this point. The procedure for having work done varies in the different institutions. In two requisitions must be made through the business officer, in another through the head of the engineering division, and in a fourth the department heads sent their requisitions direct to the central shop. At the University of Minnesota a system of job cards is in use to keep an accurate record of the repair work being performed for the various departmental laboratories. The central plant is financed by charge-backs against the departments, except in one university, where it is necessary to supplement the income from these sources with institutional funds.

As already pointed out, the policy of having each individual department operate its own scientific repair shop tends to duplication of tools and certain kinds of equipment. According to the returns, there are maintained in some institutions as high as nine different shops, while in others the shops range from three to six in number. One university operates individual shops for four different branches of engineering and another for four separate physics laboratories. The department shops are under the supervision of the department head in all the institutions reporting. In order to have repair work done, an order must be secured from the department head at five institutions, and at three others the requisition must first be sent through the institutional business officer. The approval of the super-

intendent of the physical plant is required at another, while the practice of one university consists of no other procedure than the request of staff members. Purchases made by the shops follow generally the regular channel for buying supplies.

Receiving Departments and Storehouses

Large quantities of equipment and supplies are purchased annually for the operation of the academic, administrative, and physical plant branches of land-grant colleges. To assure the proper delivery of the goods, all incoming consignments should be carefully checked as to quality and quantity upon receipt. Three different practices prevail in the different institutions. One of the arrangements consists of a central receiving station for checking all materials purchased; another procedure is the delivery and checking of goods and invoices by the departments originally ordering the supplies; and the third plan is the checking of the shipments by a central warehouse and laboratory stores.

The seven institutions that have established central receiving departments are the University of Arizona, University of Maryland, University of Missouri, Ohio State University, Oklahoma Agricultural and Mechanical College, University of Minnesota, and Purdue University. The latter also has a central warehouse and laboratory stores. According to the reports, a receiving clerk is in charge of the department whose duties consist in maintaining copies of all orders and checking against them all materials received. In some instances, the receiving clerk makes a report to the purchasing agent. The central receiving station is also responsible for the delivery of the shipments to the departments after they have been checked, its organization including campus draymen and truckmen. At one of the universities the receiving clerk while working in conjunction with the purchasing agent is under the authority of the business officer, the apparent purpose being to provide a further safeguard against the payment of invoices which have not been accurately checked.

In the second procedure, no central agency exists for the checking of incoming materials and supplies, but the responsibility rests with the individual departments in which the requisitions originate. Shipments of equipment and supplies upon arrival are delivered direct to the departments where the certification is done and the invoices certified to the business officer for payment. At two of the institutions, it was reported that the head of the department is held personally responsible for checking deliveries of goods and approving the invoices. It is obvious that such a plan has its disadvantages. The functions of a department of instruction in a university or

college are academic in nature and comprise the organization of an effective teaching unit. All efforts should be concentrated to this end. The imposition of duties and responsibilities that clearly belong to the business or purchasing branches serves only to interrupt the regular work of the departments and hamper their educational programs.

The most successful plan of handling the problem is the establishment of a central warehouse and laboratory storeroom. Such an organization serves the double purpose of a receiving and delivery station for checking incoming purchases and of a place for the storing of equipment and supplies to meet the routine needs of the institution. Ordinary business principles dictate buying in bulk, and it is difficult to conceive why any land-grant institution, regardless of its size, should fail to take advantage of such a commonly recognized economic measure.

Examination of reports show, however, that only 13 universities and colleges are operating central warehouses or stores.

The institutions making up the list are the University of Illinois, Purdue University, Massachusetts Institute of Technology, Michigan State College, University of Minnesota, Montana State College, University of Nebraska, Cornell University, Ohio State University, Pennsylvania State College, South Dakota State College, and the University of Wisconsin.

That efficient systems for the receipt and checking of incoming deliveries of supplies and equipment have been adopted at these institutions is indicated by the reports. The general procedure provides for the delivery of all shipments at the central warehouse where they are checked against the original requisitions and invoices. Permanent records are maintained of such consignments as a precaution against error. Thirteen institutions did not furnish any information whatever regarding the methods by which they handle the receipt and checking of purchased supplies and equipment.

The personnel employed in the storehouses includes storekeeper, stores and record clerks, stenographers, freight handlers, and truckmen. At one university the assistant purchasing agent is in charge of the warehouse. The classes of supplies handled are stationery, chemicals, laboratory glassware and apparatus, hardware, electrical equipment, paints, building materials, groceries, janitor and other supplies used in the different branches. The customary procedure for securing supplies in practically all the institutions is through requisitions made by the departments on the purchasing agent. After his approval the orders are sent to the central storehouse, filled, and the goods delivered to the departments or offices. In case of an emergency immediate delivery of materials may be secured. All supplies furnished by the central warehouse and laboratory stores are charged against the departments, a regular monthly accounting being made to the business officer.

Faculty Clubs

Faculty clubs are of considerable value in promoting the morale of the teaching staff, furnishing facilities for committee meetings,

providing a common gathering place for social contacts and entertainments, and offering other conveniences such as meals and lodging.

Twenty of the land-grant institutions have established faculty clubs varying in size from large organizations owning their own buildings to smaller ones occupying only a few rooms. The activities carried on by the clubs are very much the same in all of the institutions. At practically all of them the club offers social features and furnishes opportunities for entertainment. Twelve clubs have rooms available for faculty committee meetings, an important accommodation in cases where office space is lacking for such gatherings. Seven of the clubhouses are sufficient in size so that rooms for lodging are provided to a limited number of the teaching staff. The operation of a club dining room is common; the report shows that 11 clubs serve meals.

According to the returns, 14 faculty clubs are located on the campus, while 4 are situated off the campus in close proximity to the institution. In one case the club has no quarters, and in another no information was furnished as to the location of the clubhouse. Operation of the clubs is financed chiefly by dues collected from the members in all the institutions filing returns, although eight reported that the revenues to defray operating costs were supplemented by earnings from dining halls and rented rooms. Six faculty clubs receive subsidies from the institutions, a practice justified by the staff contacts afforded and by the actual amount of institutional business conducted at the clubs. The subsidies granted are minor in character however, in most cases, consisting of free quarters at three institutions, of nominal rental charges at two others, and of heat gratis at the sixth. Two faculty clubs pay rent to the institution for quarters occupied on the campus.

The clubs are uniformly independent bodies unrelated to the institutional organization. A number of them are incorporated while others are organized into holding companies. Three clubs own their buildings, two being constructed by bond issues and the third by both a bond issue and capital stock. Control and management of the clubs are vested in a board of directors or president, vice president, secretary, and treasurer at 11 institutions, in an executive committee at 5, and in the president and manager at 1. That some of the faculty clubs have been in existence for a long time is shown by the returns giving the years of operation. Two of the clubs have been operated for 22 years, 1 for 20 years, 1 for 16 years, 2 for 14 years, 4 for 10 years, 1 for 8 years, 1 for 6 years, and the remainder between 1 and 5 years.

The survey made requests for financial statements showing the annual receipts and expenditures of the clubs for the fiscal year of 1928, but in the case of only nine institutions was the information

available. The annual receipts of the faculty club of the University of Wisconsin amounted to $95,888 with disbursements of $88,231, while Ohio State University's club had receipts of $74,765 and expenditures of $70,877. At the University of Minnesota the faculty club's receipts were reported at $23,791 and expenditures at $21,251. The annual financial statements for the other clubs showed receipts and expenditures ranging from $249 to $2,500. The faculty clubs at two institutions are operated in conjunction with student unions occupying the same building. Recently the Oregon Agricultural College completed the construction of a new student union building with quarters set aside for a faculty club. The cost of the building was defrayed in part by contributions and pledges amounting to $35,000 made by members of the teaching staff.

Student Unions

Among the auxiliary organizations of the modern college are student unions, the purpose of which is to promote social activities among the students, further opportunities for social contacts, and provide quarters for social entertainments. Another part of this report discusses the social phases of student unions in detail. It is deemed advisable, therefore, to consider here only the different types of control, administrative and financial supervision exercised by the institutions, methods of financing building construction and operating costs, and auditing of accounts.

Of the 44 institutions filing returns, student unions have been established in only 12, one of which is now in the course of organization. These include eight combined student unions for both men and women students and two student unions exclusively for men students. In two institutions there are separate unions for men and women students.

The forms of government of student unions are so diversified as to raise the question as to whether any attempt has been made generally toward uniformity in the administration of such enterprises. At only three institutions are the governing boards similar in character. The three student unions with similar executive bodies are governed by a board of directors composed of faculty members, students, and alumni. Another is governed by a board of directors made up of faculty members, alumni, and one student, but the board of trustees of the institution is also included in the membership of the body.

Among the other student unions one is governed by an executive committee under institutional administration; a second by a committee composed of a professor, secretary, and treasurer of the college, and two students; a third by a president, vice president, secretary-treasurer elected by the student body; a fourth by an executive committee of faculty and alumni; a fifth by a board of governors appointed by the trustees and a board of managers appointed in

part by the president and elected in part by the students; and the sixth by a union council consisting of student, faculty members, and alumni responsible to the president and business manager. No report was received from one institution regarding the governing body of its student union.

Notwithstanding the unstandardized systems of governing the student unions, it is found that institutional supervision is maintained in all cases. The means of controlling the student unions include approval of their officers, collection of dues, and official sanction of their rules and regulations by the institutional administration.

In eight universities and colleges all three of these methods of supervision are used; in two dues are collected and rules and regulations approved by the administration, but the officers are chosen without approval; in one the dues only are collected; and in a fourth supervision is limited to approval of rules and regulations adopted by the student union.

To finance the construction of student union buildings, the institutions have resorted to various plans. The practice most generally adopted was a public subscription campaign among students and alumni, the buildings at six institutions having been constructed from funds secured in this manner. The cost of building at one institution is being repaid out of earnings. Another university reported that its student union building had been constructed through the use of unrestricted funds of the institution supplemented by subscriptions. Two other student union structures were financed through both donations and loans. The building was an outright gift at one institution, while in another case two vacated academic buildings on the campus were turned over for use as student unions.

The annual costs of operating the student unions are derived from dues, earnings, and institutional subsidies. At only one university is the student union dependent for support entirely upon dues collected from its members. The others are maintained through dues and earnings, except in one instance where the institution makes an annual appropriation of $20,000 to defray operating costs. Two universities grant subsidies either in the form of heat from a central plant or by permitting the use of buildings without rental charge. The dues of the student unions range from $1 to $10 annually, there being little differentiation between dues charged men and women students. Members of the faculty and alumni pay the same dues, except at two institutions where they are admitted without dues and at another university where the dues assessed amount to $100 and comprise a life membership. The student union with operating expenses paid by the institution through a $20,000 annual subsidy charges no dues to its members. Earnings represent large items in many cases and include the proceeds of dances, entertainments, cafeterias, barber shops, billiard halls, candy counters, and soda fountains.

In addition to the general administrative authority exercised over student unions, it is equally important that supervision be maintained over their finances. As the annual receipts and disbursements of some of these enterprises reach large figures, the most effective method is to vest complete financial control in the business officer of the institution. Six institutions have adopted such a plan, but in the others the character of financial supervision is more or less indirect. At one institution the comptroller serves as ex officio treasurer of the student union, at another the secretary of the college is treasurer, and at a third the financial control consists in the approval of the budget by a board of governors, which is appointed by the board of trustees. Reports were not made on this point by the remaining institutions.

No plan of financial supervision can be effective without a periodical audit. That a fairly adequate system of auditing is maintained over most of the student unions is indicated by the returns. No audit, however, is made of the accounts of the student union at one institution. The audits are made by a variety of officials.

While the institutional finance officer conducts the audit of student union accounts in three institutions, it is made by the secretary of the college in one, the auditing committee of the student union in one, State public examiner in one, and outside certified accountants in one.

Since regular annual audits are made of the accounts of other units and branches of the institutions, it would appear logical that the same auditors be utilized for examining the books of the student unions. The reports further show that the audits after completion are not submitted to the same administrative officials.

In one institution the audit is submitted to the student union board and university council of administration, in a second to the student union governing board alone, in a third to the institutional treasurer, in a fourth to the university administration, in a fifth to the board of regents and business officer, in a sixth to the president, in a seventh the institutional auditor maintains a continuous audit, and in the eighth no audit is made. The other colleges filed no returns on the question.

Audit and Financial Control of Student Organizations

With the general expansion of institutions, student organizations have not only increased in size but have grown in number. Practically all such organizations, whether large or small, collect and disburse funds. Every institution, therefore, is confronted by the problem of financial supervision.

Reports show that 33 land-grant institutions maintain supervision or control over the finances of their student organizations and that 10 institutions do not exercise supervision or control of any character. An additional college is just assuming such control. The kinds of organizations, whose financial affairs are supervised, differ

in the institutions. There are 12 that maintain supervision or control over the funds of social organizations, 25 of dramatic and musical clubs, 29 of student publications, 21 of class organizations and 19 of other unclassified types of student organizations. Only one of the land-grant institutions reported that control was exercised over the finances of student fraternities. The Ohio State University, however, has adopted the policy of supervising the finances of a fraternity upon special request.

For the performance of the work of supervising finances of student organizations it is necessary to provide either a special personnel or to utilize the agencies of the regular institutional establishment. As all financial affairs center in the business officer, the ordinary assumption is that the collection and disbursement of funds of student organizations should be made a part of his responsibilities. Such an arrangement has been adopted in only four institutions. Six depend on periodical audits, 13 on both periodical audits and personal supervision by faculty committees or other administrative officials, and 11 have employed special personnel to handle such finances.

The president has general administrative authority over the financial supervision of student organizations in most of the institutions. Final responsibility, however, rests in the student assembly at 1 university, the council of administration at 1, a faculty committee at 1, the dean of student affairs at 2, and the business officer at 2. Where audits are made of the accounts of student organizations as a means of supervising their finances, an important factor is the identity of the officials to whom the reports of the audit are submitted. In 3 institutions the audits are submitted to the board of regents, in 9 to the president, in 1 to both the president and business manager, in 1 to the president and also the different deans, in 1 to the council of administration and the business manager, in 5 to a committee of the faculty, in 1 to the dean of student affairs, and in 1 to the student assembly. Annual financial statements covering revenues and disbursements of student organizations are printed at 6 institutions. The expense of maintaining supervision and control of student organizations is paid from institutional funds in 14 cases and from student activity fees in 12 others. The remaining institutions either claimed that there was no significant expense connected with the activity or did not report on the subject.

It is evident from the preceding analysis of the methods employed for supervising and controlling the finances of student organizations by the various land-grant colleges that there is much wasted effort, duplication of work, misplaced responsibility, and lack of systematic procedure. To assign duties of this character to members of the teaching faculty or to academic administrative officers is clearly something of an imposition. The employment of special personnel to act in an advisory capacity to students in handling the financial affairs of their organizations is likewise a procedure which has its disadvantages. Student training in responsible management tends

to give way to reliance upon the special personnel for all the hard work. It is a decidedly valuable element in educational life when students themselves devote time and energy to the collection of the dues, keeping accounts, receiving and disbursing the funds of a student organization. The general supervisory functions that institutional interests required may probably be carried on most effectively without sacrificing the educational values of student responsibility for management by giving the institutional finance officer jurisdiction in the matter. He will most probably require exactness and clarity in accounting without attempting to assume the entire burden of administering the organizations.

Athletics

Athletics have developed into the most absorbing extracurricular activity of modern college life. So intense has become the interest and so keen the rivalry that enormous investments have been made by institutions in athletic plants from public, institutional, and other funds. Large loans have been underwritten for the same purpose, annual revenues have been built up until they equal in some instances the income of many colleges. Every conceivable means has been used to attain the highest possible reputation and prestige in intercollegiate athletics. For the promotion of athletics, for their control, and for the administration of their finances, student athletic associations have been organized, committees of the faculty appointed with plenary powers, separate organizations have been established within the institutions, special athletic officers have been employed, and other agencies set up in addition to the regular departments of physical education already existing in the colleges.

Because college athletics involve a complexity of organization, because they present complicated financial problems, and because they are one of the important questions confronting executive and administrative officers, it is necessary to deal with their control and financing in considerable detail. Table 24 presents the capital investments in athletic plants as compared with capital investments in the entire institutional plants and the annual revenues of athletics as compared with the total annual revenues from all sources of the land-grant institutions. By "athletic plants" is meant stadiums, field houses, gymnasiums, recreation fields, and all facilities for athletics, recreation, and physical education.

TABLE 24.—*Value of athletic plants as compared with entire institutional plants and annual athletic receipts as compared with total institutional receipts*

Institution	Total value of entire plant, including lands, buildings, and equipment	Total value of entire athletic plant, including lands, buildings, and equipment	Percentage of capital investment in athletic plant to entire institution physical plant [1]	Total annual revenues of institution from all sources	Total annual revenues of institution from athletics	Percentage of athletic revenues to total annual revenues of institution [1]
1	2	3	4	5	6	7
Alabama Polytechnic Institute				$1,242,497	$58,785	4
University of Arizona	$3,013,160	$257,000	8	1,114,433	18,262	2
Colorado Agricultural College	2,624,161	290,000	11	931,569	41,096	4
Connecticut Agricultural College	2,729,279	177,500	6	1,277,409	18,391	1
University of Florida	4,949,675	147,000	3	1,967,573	133,786	7
Georgia State College of Agriculture		395,000			125,876	
University of Hawaii				1,011,079	40,968	4
University of Idaho	2,428,094	304,500	12	1,270,620	33,729	3
University of Illinois	22,809,827	2,882,368	13	7,949,338	525,479	7
Purdue University	5,733,680	121,051	2	3,605,098	171,466	5
Iowa State College				4,151,256	88,215	2
Kansas State Agricultural College	5,337,692	321,600	6	2,419,888	76,226	3
University of Kentucky	2,977,841	295,000	10	2,216,070	55,249	2
Louisiana State University	6,374,000	242,500	4	1,466,844	82,627	5
University of Maryland	2,154,918	216,000	10	1,736,538	34,195	2
Massachusetts Agricultural College				1,337,377	21,510	2
Michigan State College		406,975				
University of Minnesota	27,304,946	1,836,937	7	9,356,097	498,242	5
Mississippi Agricultural and Mechanical College	2,883,895	40,000	1	1,673,656	33,718	2
University of Missouri		890,000			160,234	
Montana State College	2,281,198	220,943	9	754,271	12,278	2
University of Nebraska	10,350,366	1,250,000	12	3,700,843	190,376	5
University of New Hampshire	3,032,684	67,500	2	1,434,957	22,803	2
Rutgers University	8,052,386	967,500	12	3,677,266	60,763	2
Cornell University	14,606,874	590,000	4	9,071,559	262,768	3
North Carolina State College	4,572,247	261,000	6	1,852,393	58,724	3
North Dakota Agricultural College	1,905,112	26,697	1	993,085	20,195	2
Ohio State University	15,896,897	1,900,228	12	6,582,850	538,478	8
Oklahoma Agricultural and Mechanical College				1,810,575	56,510	3
Oregon Agricultural College	6,270,830	382,446	6	2,511,780	65,588	3
Pennsylvania State College	10,137,928	525,000	4	3,818,750	175,419	4
Rhode Island State College				462,976	6,622	1
Clemson Agricultural College				1,465,394	57,525	4
South Dakota State College	1,822,804	94,000	5	929,390	28,188	3
University of Tennessee	6,713,239	148,000	2	2,246,555	77,746	3
Agricultural and Mechanical College of Texas	6,171,728	213,111	3	3,685,426	104,194	3
Agricultural College of Utah	1,546,698	205,000	13	649,500	38,292	6
University of Vermont	2,593,585	255,233	10	1,275,857	48,424	4
Virginia Agricultural and Mechanical College	3,636,580	446,000	12	1,983,510	69,338	3
State College of Washington	6,063,796	553,363	8	1,889,667	79,974	4
University of Wisconsin	17,395,793	705,000	4	7,655,125	332,778	4
University of Wyoming	2,871,100	464,000	16	951,477	20,180	2

[1] Percentages are approximate.

That the land-grant institutions have made large capital outlays in athletic plants is evident by the figures given in the table. The total valuation of the athletic plants, including land, buildings, and

equipment, in the 33 institutions from which returns were received, amounts to $18,097,352. The University of Illinois has an investment of $2,882,368 in its athletic plant, a sum exceeding the individual valuation of the entire physical plant of 9 other land-grant colleges. The Ohio State University has the second largest investment in an athletic plant, the amount being $1,900,228. Third on the list is the University of Minnesota with $1,836,937 invested in athletics and fourth is the University of Nebraska with $1,250,000.

Of the remaining institutions, 1 has investments between $900,000 and $1,000,000; 1 between $800,000 and $900,000; 1 between $700,000 and $800,000; 3 between $500,000 and $600,000; 3 between $400,000 and $500,000; 4 between $300,000 and $400,000; 2 between $200,000 and $300,000; 4 between $100,000 and $200,000; and 2 between $50,000 and $100,000.

The land-grant colleges with the smallest athletic plants are the North Dakota Agricultural College, the investment being $26,697, and the Mississippi Agricultural and Mechanical College with $40,000. It must be understood that the capital outlays represent investments both for intercollegiate and intramural athletics and facilities for the entire physical education program, although the greater proportions are expended for intercollegiate athletics.

From this cursory review of capital investments in athletic plants, it is evident that athletics have developed into enterprises of great magnitude in many of the land-grant institutions and no longer are simply sources of recreation and diversion for the student body. The capital outlays for athletics constitute a rather large proportion of the total capital investment in some institutions. For instance, the University of Wyoming has a total capital investment of $2,871,000 in its entire physical plant while the capital investment in its athletic plant amounts to $464,000, or 16 per cent. Similarly the Agricultural College of Utah has invested $205,000 in its athletic plant as compared with $1,546,698 in its entire educational plant, the proportion being 13 per cent. The University of Illinois has a similar proportion of capital investment in its athletic plant.

The proportion of capital outlay in athletic plants to the entire institutional physical plants is 12 per cent in the cases of the University of Idaho, University of Nebraska, Rutgers University, and Virginia Agricultural and Mechanical College, while it is 11 per cent in the Colorado Agricultural College, and 10 per cent in the University of Kentucky, University of Maryland, and University of Vermont. Of the remainder, the proportions range from 5 to 10 per cent in 9 institutions and between 1 and 5 per cent in 11 institutions.

Among the institutions having small capital investments in their athletic plant as compared with their entire physical plants are the North Dakota Agricultural College and the Mississippi Agricultural and Mechanical College with but 1 per cent; Purdue University, University of Tennessee, and the University of New Hamp-

shire with 2 per cent; and the University of Florida and Agricultural and Mechanical College of Texas with 3 per cent. At two of the larger institutions, the University of Wisconsin and Cornell University, the capital investments in athletic plants represent only 4 per cent of the valuation of their entire institutional plant.

A factor of utmost importance in considering capital investments in athletic plants is whether State and institutional funds have been utilized to finance their construction or whether the athletic plants have been built through athletic receipts, outside gifts, and loans. A careful inquiry has been made into the subject. According to the returns, the athletic plants of 3 land-grant colleges have been financed entirely by State appropriations and in 22 others they have been financed in part from funds provided by the State. Institutional funds alone were used to construct the athletic plant of only one institution, 18 other plants were constructed in part by institutional funds. Ten institutions have used neither State nor institutional funds and have depended entirely on athletic receipts, outside gifts or loans to defray the capital costs of their athletic plants.

The capital investments in athletic plants of most of the land-grant colleges, as already indicated, have not been obtained from a single source. Of the institutions, which have used State funds in part, 2 built their athletic plants both from State and institutional funds: 4 from State funds and athletic receipts; 3 from State funds, institutional funds and gifts; 2 from State funds, athletic receipts, and loans; 3 from State funds, gifts, and loans; and 1 from State funds, institutional funds, athletic receipts, and gifts. The institutions which have used no State funds, but have erected their athletic plants partially through institutional funds and other sources, include 1 where the plant was financed through institutional funds and athletic receipts; 1 through institutional funds and gifts; 3 through institutional funds, athletic receipts, and gifts; 1 through institutional funds, athletic receipts, and loans; and 1 through funds derived from institutional appropriations, athletic receipts, gifts, and loans. Among the 10 land-grant colleges which have adopted a policy of financing athletic plants without use of State or institutional funds, 1 institution has used athletic receipts alone; 2 have used gifts and loans; and 4 athletic receipts, gifts, and loans.

Large loans have been underwritten in order to finance the construction of athletic plants at a number of institutions. The returns disclose that 16 institutions have borrowed money for this purpose either through bond issues or long-time bank loans secured by mortgages. The amount borrowed by these institutions totals $2,733,813 and represents an average of 23 per cent of their total capital investments in athletic plants. The loans made by some of the colleges, however, equal 50 per cent of the cost of the plants. Of the total amount of loans on athletic plants, the sum of $1,215,531 has been repaid up to June 30, 1928, leaving an unpaid balance of $1,518,282.

Ohio State University has made the largest loan of any land-grant institution to finance the construction of its athletic plant, the amount being $555,000, of which $152,500 was still unpaid on June 30, 1928.

Second on the list is the University of Minnesota with a loan of $450,000, with $350,000 unpaid, while the third largest loan has been made by the University of Illinois, the amount being $358,800, all of which has been repaid except $44,000. The universities of Missouri, Nebraska, and Cornell have each borrowed $200,000 for athletic plants with unpaid balances of $140,000, $180,000, and $155,000, respectively.

Other loans of considerable size have been made by the Georgia State College of Agriculture with a loan of $185,000 and $150,000 unpaid, the Agricultural and Mechanical College of Texas with a loan of $160,000 and $80,000 unpaid, and Kansas State Agricultural College with a loan of $115,420 with only $16,050 unpaid.

In the remaining institutions where loans were made to build athletic plants, the amounts range from $6,000 to $75,000 the greater per cent of which is outstanding.

Annual receipts from athletics like capital outlays in athletic plants are of large proportions in many of the land-grant institutions. The data for 41 institutions are presented in the table together with comparative figures on their annual incomes from all sources for the fiscal year 1928. The annual athletic receipts for these institutions total $4,545,217, an amount far in excess of the educational incomes of many of the land-grant institutions. Ohio State University has annual athletic revenues totaling $538,478, the largest of any of the institutions submitting reports. The institution with the second largest athletic receipts is the University of Illinois, the amount being $525,479; the University of Minnesota is third, with athletic receipts of $498,242; the University of Wisconsin fourth with receipts amounting to $332,778; Cornell University fifth with $262,768. The athletic receipts of the other land-grant colleges range from $6,600 in the case of Rhode Island to $190,000 in the case of Nebraska.

Since receipts from athletics have reached such large figures in many of the land-grant colleges, it is sometimes assumed that the policy should be adopted of making athletic earnings defray all of the operating expenses of athletics without resorting to State appropriations, subsidies from institutions, or assessments of special fees against students, and even that they should assist in supporting other student extracurricular activities. In dealing with this question it will be necessary to differentiate between intercollegiate and intramural athletics as their finances are administered separately in some cases. Intercollegiate athletics will be considered first. The reports show that only 8 of the land-grant institutions defray the operating costs of intercollegiate athletics from earnings alone, while 27 institutions assess a special athletic fee against the students using revenues

derived from this source as well as athletic earnings to meet the current expenses of intercollegiate athletics. In the remaining universities and colleges, the athletic earnings apparently being insufficient, it has been necessary for the States to make appropriations or the institutions to grant subsidies. One institution reports that the intercollegiate operating expenses are paid through athletic earnings, State appropriations, and institutional subsidies, three others through athletic earnings, State appropriations, and student athletic fees; and three through athletic earnings, institutional subsidies, and student athletic fees.

Intramural athletics are an integral part of college athletics and are more important in furnishing recreation and diversion to the general student body than intercollegiate athletics. The returns indicate that in the case of 12 land-grant colleges the expenses of intramural athletics are defrayed wholly or in part by the earnings of intercollegiate athletics. Of this number two institutions support intramural athletics from athletic earnings alone; five by athletic earnings supplemented by student athletic fees; two by athletic earnings supplemented by student athletic fees and State appropriations; one by athletic earnings, supplemented by student athletic fees and institutional subsidies; and one by athletic earnings supplemented by State appropriations and institutional subsidies. The support of intramural athletics is dependent upon State appropriations, institutional subsidies, or the assessment of athletic fees against the students in the other universities and colleges submitting returns. Five institutions report that the operating costs of intramural athletics are paid entirely by State appropriations. In three universities the source of support consists wholly of institutional subsidies and in two colleges the support is derived solely from student athletic fees. Intramural athletics are financed partially by institutional subsidies and State appropriations in two additional institutions while in three others both institutional subsidies and student athletic fees form the means of support.

Of vital import and significance is the control and administration of college athletics, particularly in view of the capital investments, loans, and large amounts of moneys handled annually. Another portion of this report discusses in detail the organizations created in the different land-grant colleges for the general supervision of intercollegiate and intramural athletics so that only questions connected with the actual business and financial procedure will be taken up here.

It has already been pointed out that the different types of organizations for the control of athletics include student athletic associa-

tions, committees of the faculty and administrative officers, special athletic officers, departments of physical education, and other agencies. Regardless of the type of organization existing, the reports show that all moneys connected with athletics are collected and disbursed by the institutional business officer in 26 institutions. Athletic moneys are handled by student athletic associations or similar organizations in 10 institutions, and by athletic councils or boards of control consisting of faculty or administrative officers in 4, while in the case of 1 institution such moneys are handled by the athletic manager, who is an institutional officer.

Inquiry into the question of final authority over the athletic funds, including power of issuance of requisitions, vouchers and other methods of disbursement discloses a variety of complicated financial and business procedures. Without doubt the most efficacious plan of controlling athletic finances is to handle them in the same manner as the finances of any regular division or unit of the institutional establishment are administered. The returns indicate that this practice, however, has been adopted in the case of only 13 institutions where athletics are regarded as part of the functions of the department of physical education and all funds administered accordingly. In nine institutions financial administration is exercised by an athletic committee or council of the faculty assisted by a graduate manager or director and in three by a committee composed of both faculty members and students. A dual system of control over athletic finances by the student athletic organization and the institutional administration exists in seven universities. Although the athletic moneys, as already shown, are collected by student athletic associations in 10 institutions, full authority over the disposition of the funds themselves rests in the student athletic organizations in only four cases, the remaining six being compelled to submit to institutional supervision. The business control of athletic finances is vested in a director of athletics appointed by the institution in two other cases, in a graduate manager responsible to a student board in a third, in an athletic council of the faculty in a fourth, and an athletic board of students in a fifth institution.

Notwithstanding the fact that this presentation indicates that most of the land-grant institutions have retained control over the financial affairs of athletics, there is need for revision of the practices prevailing. The plan of delegating to a committee or board composed of faculty members the responsibility of collecting and disbursing large sums of athletic moneys is inconsistent with their primary duties as academic officers. It is likewise difficult to comprehend

the reason for conferring such authority on specially created and appointed officers, such as graduate managers or athletic directors. In cases where student athletic associations actually or partially control the fiscal affairs of athletics, there is little doubt that the boards of trustees would be justified in discontinuing such control in view of the large capital investments and earnings, and in view of the fact that the institutions themselves in the end are the responsible agents. Sound business principles dictate that athletic finances be handled through regular institutional channels. All moneys should be collected, deposited, and disbursed by the institution's financial officer.

Chapter VI.—Land and Buildings, Operation, Maintenance, and New Additions to Physical Plants

Although a meritorious academic program may have been outlined, an excellent staff of teachers and research workers organized, and the necessary educational equipment provided, land for campus and experimental farms and buildings for classrooms, laboratories, administrative offices, residence halls for students, and other facilities are essential for the conduct of the work of the land-grant institutions. Not only must the physical plant be sufficient in size and capacity to meet the needs of the administrative and educational organizations, but it must be operated and maintained at the highest possible standard of efficiency.

In previous sections of this report, the amounts of capital actually invested in the physical plants of the individual land-grant colleges, including campus, farms, other lands, buildings, and residence halls have been presented in detail. Figures have also been given showing the expenditures for new buildings and improvements during the single year of 1928 indicating that because of enlarged programs, growing activities and larger student enrollments the physical plants of most of the institutions are being expanded on a large scale. The present chapter, therefore, will deal with the size of the plants rather than the capital investments in them, the amount of land owned and the purpose for which used, the number of buildings and their types, the sources of funds for their erection, the administration of the buildings, the organizations for the care and maintenance of the buildings and grounds, the operation of power and utility plants, and the procedure for the extension and construction of new additions to the plants. Table 25 shows the land and buildings owned by the colleges in 1928.

TABLE 25.—*Lands and buildings owned by land-grant institutions*

Institutions	Total number of acres	Number of acres in campus	Number of acres in farms	Number of acres assigned to athletics and recreation	Number of acres assigned to military	Number of acres in forests and other lands	Total number of buildings	Number of various types			Source of funds		
								Frame	Fireproof	Slow-burning	State	Institutional	Gifts
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Alaska Agricultural College and School of Mines							10	10			10		
University of Arizona	700	60	590	40	10		29	1	25		22	1	2
University of California [1]	9,261	320	1,059	18	4	7,860	273	188	60	25	238	4	31
Colorado Agricultural College	2,117	60	412	20	15	1,610	30	4	12	14	29		1
Connecticut Agricultural College	1,769	133	656			980	63	47	16		63		
University of Florida	1,681	673	300			708	39	23	16		37	1	1
Georgia State College of Agriculture	987	100	620	10	5	252	22	8		14	4	15	3
University of Hawaii	199	38	148	11	2		31	8	22	1	25	2	4
University of Idaho	1,250	15	550	5		680	24	8	7	9	19	4	1
University of Illinois	2,297	204	1,925	51	44	73	124	52	38	34	88	31	5
Purdue University	4,535	115	2,842			1,578	69	27	15	27	33	21	15
Iowa State College	1,994	180	1,344	50	20	400	116	55	31	30		1	
Kansas State Agricultural College	12,923	150	1,250	50	25	11,448	32	4	8	20	30		2
University of Kentucky	16,083	80	[2] 2,500	10		13,493	31	5		26			
Louisiana State University	4,408	50	3,388	10		960	74	23	26	25	64		10
University of Maryland	422	222	200				77	52	4	21	67	10	
Massachusetts Agricultural College	1,586	90	240	5		1,251	127	94	1	32	125		2
Massachusetts Institute of Technology	785	80		15		690	36						
Michigan State College	1,700	100	1,600				68	24	10	34			
University of Minnesota [1]	5,605	124	2,539	37	3	2,902	313	182	53	78	308		5
Mississippi Agricultural and Mechanical College	2,270	800	1,200	20		250	107	94	6	7	101	5	1
University of Missouri	862	70	762	30									
Montana State College	455	72	360	18	5		29	14	9	4	29		
University of Nebraska	5,235	125	752	12	15	4,331	48	7	14	27	45	1	2
University of New Hampshire	835	360	150	10	10	305	34	16	4	14	15	17	2
Rutgers University	1,007	120	453	75		359	170	75	25	70	20	119	31
Cornell University	4,312	300	1,525	59		2,428	55	19	4	32			
North Carolina State College	495	55	400	10		30	31		10	21	30		1
North Dakota Agricultural College	943	40	903				24	10	3	11	22		2
Ohio State University	1,143	186	806	75	18	58	61	11	27	23	55	1	4

Oklahoma Agricultural and Mechanical College	1,240	100	1,109	31									
Oregon Agricultural College	2,910	142	1,968			800	66	29	5	32			
Pennsylvania State College	2,117	200	1,792	125			54	12	13	29	42	5	7
Rhode Island State College	168	50	80	8		30	17	7		10	17		
Clemson Agricultural College	3,249	150	1,589	20		1,490	27	5	2	20	27		
South Dakota State College	1,090	44	1,020	15	1	10	43	26	6	11	41	2	
University of Tennessee	1,960	55	1,817	7		21	164	133	3	48	25		108
Agricultural and Mechanical College of Texas	13,374	215	1,809	12	8	11,330	367	294	26	47	272	95	
Agricultural College of Utah							30	19	7	4	30		
University of Vermont	655	130	199	11		315	56	34	3	19	1	41	14
Virginia Agricultural and Mechanical College	722	122	550	45		5	82	44	5	33	58	22	2
State College of Washington	1,070	96	964	10			99	73	10	16	96	2	1
University of Wisconsin	1,887	150	1,687	50			[3] 244	5	33	18	237	3	4
University of Wyoming	1,206	96	1,110				23		11	12	13		[4] 10
Total	119,447	6,472	45,168	975	185	66,647	3,419	1,742	570	898	2,338	403	271

[1] Includes branches of institution. [2] Estimated. [3] Type of 188 buildings not given. Federal Government.

Land holdings of the land-grant institutions are generally large and in many instances exceed the actual educational and experimental needs of the colleges. The table shows that 119,447 acres of land are owned by the 42 colleges from which returns were received. Of this amount 52,800 acres are utilized for campus, instruction, and experimental farms, athetics, and military purposes, leaving a surplus of 66,647 acres, or 56 per cent of the total acreage. This surplus is possessed by 30 of the 42 institutions and consists principally of forests and similar areas. The total land owned by the individual institution varies from as high as 16,083 acres to as low as 168 acres. There are 3 institutions with land holdings exceeding 10,000 acres while there are 12 with holdings of less than 1,000 acres. The remainder ranges from 1,000 to 10,000 acres.

The tabulation discloses that 6,472 acres are utilized for campuses by the 42 institutions. As a large and expensive campus is a material factor in increasing physical plant operating costs, it is proposed to consider in some detail the size of the campuses maintained by the different institutions. Two of them in accordance with their own statements have campuses as large as 800 and 673 acres, 3 between 300 and 400 acres, 4 between 200 and 300 acres, and 2 between 180 and 200 acres. Most of these institutions are the larger State universities, but among the list are several smaller colleges and in these instances it is difficult to comprehend why such large campuses are maintained and how they can be properly cared for except through unusually high expenditures. The campuses of the remaining institutions range from 15 acres up to 160 acres in size. As already explained, the care of large campuses involves considerable expense, which otherwise might be devoted to educational uses and purposes. Where the proportion of the total institutional expenditures for their maintenance is high, it would seem advisable for administrators to make inquiry into the subject with the view of reducing the sizes of the campuses to conform to the resources and the needs of the institutions.

As instruction in agriculture and agricultural experimentation are among the principal activities of the land-grant colleges, the number of acres set aside for farm purposes is of importance. An examination of the compilation shows that the farms of the 42 institutions filing returns total 45,168 acres. Many of the colleges have farms of considerable size the areas of which exceed 1,000 acres and run as high as 3,388 acres, the latter being the largest of the group. In the majority of these cases the institutions are located in agricultural States and their work is concentrated in a large measure on agriculture. Among the large farms are three between 2,500 and 3,000 acres, nine between 1,500 and 2,000 acres, and seven between

1,000 and 1,500 acres. There are 22 land-grant colleges the farms of which are below 1,000 acres. Of the smaller ones there are three between 100 and 200 acres, and 1 less than 100 acres. The size of the farm of one institution is less than the acreage of the campus.

In addition to the campus, 34 colleges have segregated areas for athletics and recreation, a total of 975 acres being utilized for such purposes. The space assigned in the individual colleges is as high as 125 acres or an area more than half the size of the entire campus in one instance and in two others is as high as 75 acres.

Areas set aside for athletics and recreation vary from 50 to 60 acres in 5 institutions, from 40 to 50 acres in 2, from 30 to 40 acres in 3, from 20 to 30 acres in 3, from 10 to 20 acres in 14, and less than 10 in 4. Athletic fields are reckoned as a part of the regular campus in the remaining institutions. There are 15 colleges that assign special land for the use of military education, the areas varying from 44 acres to 1 acre.

While campus and farms are necessary parts of the physical plants, of far more importance are the buildings available for the conduct of educational functions and activities. The survey attempted to ascertain the exact number of buildings owned and operated by each of the land-grant institutions in 1928, their type and sources of funds for their construction. The returns, however, were considerably confused due to the fact that some colleges listed only major buildings while others included smaller structures, such as tool houses and sheds. It is found that a total of 3,419 buildings were owned by the 42 institutions reporting. The number of buildings exceeded 100 and ranged up to 367 in 10 institutions. In the case of the remaining 32, the number varied from 100 to 10.

The types of the buildings, whether frame, brick, concrete, or steel, are determining factors in their value, upkeep, deterioration, and destructibility by fire. A large majority of the buildings owned by the land-grant colleges are of frame construction, the total being 1,742. The figure is not representative as many of the smaller buildings not used for class work are included in the total. In most cases the major buildings are either of brick, concrete, and steel and in only one college were all the buildings of frame construction. There were 3 institutions listing between 133 and 294 frame structures, but an examination of the returns indicate that they consist principally of small barns, cottages, and sheds. The frame buildings of 4 other institutions vary from 60 to 100 in number and much the same situation is applicable to them.

Of the remainder 3 institutions have between 50 and 60 frame buildings, 2 between 40 and 50, 1 between 30 and 40, 6 between 20 and 30, 8 between 10 and 20, and 11 fewer than 10. Two of the colleges report that none of their buildings is of frame construction while one failed to describe the types of any of its structures.

A considerable proportion of the buildings comprising the physical plants of the land-grant institutions is fireproof, the total being 570. The present tendency is to build only structures of this type. One institution, a large State university, has 60 fireproof buildings, a second 53, and three others between 30 and 40.

The returns show 5 additional institutions with from 25 to 30 fireproof buildings, 1 from 25 to 30, 3 from 15 to 20, 7 from 10 to 15, 8 from 5 to 10, and 8 fewer than 5. In the entire list, only 4 colleges have no fireproof structures.

The most common building is the semifireproof or slow-burning type of brick or stone construction with wooden joists and interior. There are 898 such buildings in 37 of the institutions.

The number ranges from 70 to 80 in 2 instances, from 40 to 50 in 2, from 30 to 40 in 7, from 20 to 30 in 11, from 10 to 20 in 10, and fewer than 10 in 5. Four colleges have no slow-burning buildings.

Funds for the construction of the buildings owned by the land-grant colleges were derived principally from the States. A total of 2,338 structures were erected through State appropriations, or 77 per cent of the total number. In 22 institutions 403 buildings were constructed through institutional funds, while 271 structures were built through private gifts.

Administration of Plant

The foregoing description has presented in more or less detail the size and character of the physical plants of the different land-grant institutions.

Whether the plants are inadequate to meet the needs depends in a measure upon the number and capacity of the buildings. Another question of vital importance, however, is whether the buildings are properly administered, whether records are maintained of the amount of space available in them, whether a centralized authority has been established for the assignment of building and room space, and whether the methods of assigning space are the most effective in securing continuous use of classrooms and laboratories and in their utilization of the fullest capacity. Unless an efficient machinery for the distribution of space is created, waste is certain to result and physical plants frequently described as inadequate are in reality capable of meeting all requirements.

A fundamental essential is the maintenance of records showing the amount and details of space in the various buildings and facilities of the various rooms. Without such data, only a general conception of the capacity of the physical plant is available and the difficulty of assigning space on a systematic basis is obvious. A further handicap is the lack of information necessary in securing additional appropriations from the State legislatures for new buildings and

extensions. Records, including number of rooms, areas, and seating capacity, are kept by 35 of the 44 land-grant colleges reporting in the survey on this point. The other nine colleges appear to be without such records. In addition to general information on the rooms, there are 30 institutions that keep detailed records of blackboard space, lantern facilities, and other special features.

The next important consideration in plant administration is the identity of the authorities maintaining the records and whether they are the same as the officials actually responsible for the assignment of space. It is evident that the officers controlling the distribution of the space should have immediately available records of the space to be distributed. In 13 institutions the assignment of space is under the jurisdiction of a schedule or rooms committee composed principally of administrators and faculty members, but in only six cases does the committee maintain the space records. Similarly there are 13 colleges where the president assigns the space, although in only 1 does he keep the records of the space. The registrar keeps the space records in nine institutions and has control of its assignment in five, while in six cases the deans and heads of the divisions maintain the records, but assign the space in only five instances. The department of buildings and grounds is charged with keeping the records at eight institutions but the duty of assigning the space has been vested in the superintendent in only one of them. At three colleges where the chief business officer maintains the records, he has charge of space assignment in two cases. There is one institution where the supervising architect both keeps the records and assigns the space, and another where a scheduling officer has been appointed who handles both the records and makes all assignments of space.

Procedures for the assignment of space are at variance in the different colleges. A general lack of centralized authority is found in a number of instances. Of the 44 institutions reporting, there were 27 that described their practices in space assignment, 6 reported no specific methods, and 11 failed to furnish any information whatever. Two specific plans are followed, one in which the buildings and rooms are permanently assigned for the definite use of major divisions or departments. In such cases central control is released to a considerable extent, although the division heads must in some cases submit schedules showing the disposition of the space under their jurisdiction. The practice of assigning buildings and rooms to major divisions and departments permanently has been adopted in 14 of the land-grant colleges. The other plan consists in the assignment of all building and room space on the campus from a central office.

Under such arrangements deans of major divisions and department heads submit requests for space and distribution is made on this basis. Thirteen of the colleges follow this procedure. Requests for space assignment in some of the institutions must be presented in writing and originate with the department and are approved by the dean before submission to the central authority. In other cases the allotment of rooms is made after personal consultation. At one institution, rooms are assigned first to prescribed courses of study and the remaining space is distributed to elective courses. In another it is required that division heads make reports of the number of hours each day when the rooms under their control are unoccupied, the central office then assigning the space to other departments as needed. Periodical surveys of the use of the buildings and rooms are reported by five institutions, the surveys being conducted quarterly by two, semiannually by two, and every two years by one.

From an examination of the returns submitted, little doubt exists that there is lack of organization in the administration of building space in many of the colleges. Haphazard and unsystematic procedures are found. A definite policy of central control should be inaugurated, thorough and complete records of available space kept, and its assignment made on a business-like and efficient basis. A continuous check should be maintained to discover unoccupied and unused space, so that waste will be eliminated to the largest degree practicable. While the space assigned to major divisions and departments should be grouped in the same buildings, they should not be given exclusive use of buildings unless their requirements so warrant.

Where vacant rooms are found in such buildings, their assignment should be made to other departments needing space. As a general rule, the full use of space should be permanently assigned to departments only for specially equipped laboratories or for offices or seminars.

Operation and Maintenance

Operation and maintenance of the physical plants is one of the major responsibilities of the business management of the institutions. The cost represents one of the principal noneducational expenditures of the colleges and frequently runs into hundreds of thousands of dollars. In addition, operating and maintaining the plant involves the creation of an extensive organization employing a large personnel charged with the duty of caring for all the institutional properties, of their repair, upkeep, and protection, and of providing heat, light, and other services.

Expenditures for operation and maintenance have already been given under the financial compilations included in another part of

this report. The question of the final administrative responsibility over the physical plant has also been previously considered. The present discussion is limited, therefore, to the organization itself, methods of conducting the work, personnel employed, and character of the services rendered.

The work of operating and maintaining a physical plant consists of four distinct principal functions—janitor service, care of grounds and roads, upkeep of buildings, and services of utilities. Regardless of the size of the physical plant the organization should be segregated into these general divisions, each operating as a separate function under competent supervision. The division of janitor service should be responsible for the sweeping, dusting, scrubbing of floors, woodwork, washing blackboards, windows, and cleaning lavatories; the division of campus and grounds for the mowing of lawns, tree surgery, shrubbery maintenance, refuse disposal, care of walks and roads, and police and fire protection; the division of the upkeep of buildings for making repairs, including carpentry, plumbing, painting, and electrical work: and the division of services of utilities for the operation of the central light, heat, and power plants, water, sewerage disposal, and telephone systems.

For the purpose of ascertaining the nature of the organizations created by the different land-grant colleges for the operation and maintenance of their plants, requests were made for organization charts. Only 13 of the institutions responded. In all of these cases the organization is separated into distinct divisions operating along lines which conform in general to the plan just outlined. The reports of a considerable number of the other colleges indicated that the department has been organized on a functional basis, although no charts were submitted. In some colleges, however, there is much decentralization due to the creation of a large number of separate units thus leading to lack of proper supervision and to division of authority. Several institutions reported that each of their buildings has been placed under the control of a faculty member who is responsible for the care of the building under his charge and for the supervision of the janitor service. In another case the division for the care of the campus has been established as a separate unit from the remainder of the operation and maintenance organization. In two colleges, the school of engineering has supervision over the upkeep and repair of the buildings and properties, this work having been taken out of the hands of the physical plant department. A more adequate conception of the organization is obtained by a detailed study of the different divisions and the supervisory methods employed in conducting them.

Janitor Service

Janitor service is one of the principal duties for which the operation and maintenance department is responsible and is the subject of frequent complaint and dissatisfaction. If the best possible service is to be rendered and the highest efficiency maintained, sufficient personnel should be employed and a rigid system of supervision established. The number of janitors employed by the different land-grant colleges varies in accordance with the size of the plants. A total of 1,362 janitors was employed in 1928 by the 43 colleges filing reports, the highest number recorded in any single institution being 82 and the lowest being 5. Two of the colleges employed between 65 and 70 janitors.

The remaining 4 institutions employed between 60 and 65 janitors, 1 between 55 and 60, 2 between 50 and 55, 4 between 40 and 45, 3 between 35 and 40, 3 between 30 and 35, 1 between 25 and 30, 4 between 20 and 25, 7 between 15 and 20, 5 between 10 and 15, and 5 between 5 and 10. Five colleges report that students are used for janitor service on a part-time basis.

An example of the diverse organizations existing in the institutions is found in the identity of the official actually authorized to employ the janitors. In 28 institutions the superintendent of buildings and grounds is charged with this duty while a variety of officials hire the janitors in the remaining cases.

The janitors are employed by the head janitor in 5 institutions, the business manager in 7, the assistant supervising engineer in 1, the student help committee in 1, the storeroom foreman in 1, the directors in 1, and the college heads in 1. In some of the latter instances it is stated that the physical plants are not of sufficient size to warrant the employment of a superintendent of buildings and grounds.

The best business procedure seems to dictate that the officer to whom the janitors are responsible after employment would be the officer who employed them. Yet the returns show that such a practice is not entirely followed in many colleges.

The janitors are under the direct authority of the superintendent in 17 institutions, the head janitors or foremen in 18, the business manager in 1, the storeroom foreman in 1, the assistant supervising engineer in 1, faculty members in charge of the buildings in 1, college heads in 1, directors of divisions in 1, and in 2 cases the janitors are responsible to a number of different chiefs.

Thus the burden of supervising janitors has been placed upon members of the faculty and educational administrative officers in several of the institutions. Such an arrangement is inadvisable and can only have the effect of interfering with the academic work of these staff members.

Not only should regular inspections be made of each building on the campus as a check on the janitor work, but formal reports should be prepared and filed at regular intervals on their condition as to

cleanliness, heating, and ventilation. It is found that in all the institutions, with four exceptions, a definite plan of inspection of the buildings is in force.

At 17 colleges the buildings are inspected daily, at 2 semiweekly, at 9 weekly, at 3 monthly, at 2 constantly, at 2 very frequently, at 1 in the discretion of the superintendent, and at 4 no regular time is fixed. The inspections are made by the superintendent of buildings and grounds in 13 institutions, by the head janitor or foreman in 17, by the business manager in 4, by the night watchman in 1, by the supervising architect in 1, and by the commandant of cadets in 1. A system of formal reports on the condition of the buildings has been adopted by 21 institutions while in 23 others no reports are made. Such reports are prepared by the superintendent of buildings and grounds in 7 institutions, by the head janitor or foreman in 6, by a regularly employed inspector in 4, by the supervising architect in 1, by the university physician in 1, by the night watchman in 1, and by a faculty member in 1. The importance attached to the reports is signified by the authority with whom they are filed. In 4 cases they are submitted to the president, in 10 to the superintendent of buildings and grounds, in 2 to the business manager, in 1 to the treasurer, in 1 to the supervising architect, and in 1 to the commandant of cadets. The reports are prepared and filed daily at 6 institutions, weekly at 3, monthly at 1, semiannually at 1, 3 times annually at 1, annually at 1, and irregularly at 6.

The load imposed upon the individual janitor is a significant factor in determining his ability to perform the work imposed upon him and in evaluating the efficiency of the entire janitor service. On a basis of square feet of building space assigned each janitor, an effort was made to learn the standard load per janitor. Twenty-six institutions did not furnish any data. The standard load per janitor in the 18 other institutions varied from as high as 87,120 square feet per janitor in the Oregon Agricultural College to as low as 10,000 square feet in the Michigan State College and the North Carolina State College. One institution fixed the load at 50,000 square feet.

Of the remainder there are 2 that estimated the standard load per janitor from 30,000 to 35,000 square feet, 3 from 25,000 to 30,000 square feet, 6 from 20,000 to 25,000 square feet, and 4 from 15,000 to 20,000 square feet. The reports disclose that the janitors are charged with other duties than cleaning the buildings in 15 institutions. In six cases the janitors are responsible for handling the campus mail and for other messenger service. Four institutions require them to handle freight shipments including the unpacking of supplies and equipment while the janitors deliver office supplies to staff members at 1 college, move furniture at 2, lock the buildings at 2, and act as firemen at 2. Regulation of heat and ventilation in the buildings is a part of the duties of the janitors in 15 institutions.

Campus and Grounds

The exterior appearance of the modern college, the architectural design and arrangements of the buildings, the beauty of the campus and grounds are factors in the creation of an atmosphere of learning and scholarship. This phase of physical plant development has been regarded as of such importance that 32 of the land-grant institutions, according to the reports received, have outlined a compre-

hensive plant of campus improvement covering their future building and campus needs. In 12 cases the plan has the approval, tacit and otherwise, of the State legislative and executive officials. There are also 11 institutions that have retained the services of a professional landscape architect for the development of a system of campus landscaping, while in 13 others the actual work of caring for the campus and grounds is under the immediate supervision of either professional engineers or staff members of the departments of landscape architecture or horticulture.

The number of persons employed by the campus and grounds division varied in the different institutions. Among the largest universities is one that employs a total of 126 persons and another where the number amounts to 30.

In the remaining institutions the personnel ranged from 15 to 20 persons in 4 cases, from 10 to 15 in 8, from 5 to 10 in 20, and fewer than 5 in 13. As already indicated, the division is under professional supervision in 13 instances, a civil or maintenance engineer being in charge at 2 institutions, a resident architect at 1, a regularly employed landscape gardener at 1, and the head of the landscape gardening or horticultural departments of the institutions at 9. The superintendent of the physical plant is in direct control in 15 other institutions and the campus foremen in 23. A conception of the final authority over the work may be formed from the reports indicating to whom the head of the grounds division is responsible. In 13 institutions the division head is responsible to the president, in 11 to the chief business office, in 13 to the superintendent of the physical plant, and in 3 to the head of the department of horticulture or landscape gardening.

For the purpose of obtaining information on the amount of work imposed upon the individual employee in the campus and grounds division, data were collected. That there is wide variance in the loads is indicated by the reports. In a number of cases institutions with larger campuses employed a smaller number of persons to care for them than the institutions with less extensive campuses. The reports showed that in one college with a campus of 800 acres the number of persons employed in its division of campus and grounds amounted to 10, the load being 80 acres per person. The area of the campus of a second institution consisted of 404 acres with 19 persons employed, while a third had a campus of 250 acres with a force of 6 employees. In each of these cases, the load is 40 acres per person, an unusually high burden. The load in the other institutions ranged from as high as 35 acres per employee to as low as 1 acre per employee.

There are 3 with loads of from 30 to 35 acres per person, 3 from 25 to 30 acres, 2 from 20 to 25 acres, 8 from 15 to 20 acres, 4 from 10 to 15 acres, 8 from 5 to 10 acres, and 4 where the load was less than 5 acres per employee.

Every institution should maintain a police and watchman force for the protection of its properties from fire, theft, and trespassing; for the policing of the grounds and buildings; and for the regulation

of automobile traffic where the necessity arises. In general the best arrangement is to include the force as a part of the campus and grounds division, although it is found in a number of cases that a separate organization has been created.

The reports indicate that 39 of the 44 colleges submitting returns maintain a force of policemen and watchmen. In all the cases, a night service has been established while only 23 maintain a day service. The number of police and watchmen on duty at night in the individual institutions varies from 1 to 10, and for the daytime service from 1 to 6. The night watchmen have police powers and three institutions report that they are regularly constituted officers of the law being responsible directly to the sheriff of the county, the city chief of police, or the local police magistrate. That the organization is operated separately from the physical plant division in several instances is revealed by the returns showing the official to whom the police and watchmen are directly responsible.

In 4 colleges the president has supervision over them, in 7 the chief business officer, in 20 the superintendent of buildings and grounds, in 2 the supervising engineer or architect, in 2 the head janitor, and in 1 the military commandant. There is divided authority in 1 institution, the treasurer being in charge of the force detailed for night service and the superintendent of buildings and grounds of the force performing day service.

Equipment for the protection of the physical plants against fire has been provided by all the land-grant institutions. In addition to fire extinguishers, hose, and water connections located in the buildings, 30 of the institutions depend upon the cities in which they are located or upon nearby communities for fire protection. A system of water plugs and hydrants is located on their campuses. The remaining 13 institutions without municipal protection have organized institutional fire departments with the necessary equipment and personnel, both voluntary and employed. The official in charge is the superintendent of buildings and grounds in 7 institutions, the fire chief in 2, the engineer in 2, the chairman of the fire protection committee in 1, and the commandant of cadets in 1. The equipment includes different types of fire apparatus, such as water towers, hook and ladder wagons, hose reels, chemical engines and steamers, which in nearly every case are motor driven. One institution maintains as many as eight fire trucks, while in the remaining 12 the number varies from one to four.

Upkeep and Repair Division

To avoid rapid deterioration of the buildings owned by the institutions and consequent heavy depreciation in property valuations, a sufficiently large force of workers should be constantly employed to keep all the structures on the campus in a state of repair.

An examination of the reports shows that 41 out of the 43 land-grant colleges reporting operate an upkeep and repair division for this purpose, while 2 colleges have no permanent staff for the upkeep of their plants. The divisions in a number of the institutions are very large, every type of mechanic and craftsman being employed. One of the institutions has a permanent force of 105 workers and another 76, while the personnel of 2 others numbers from 40 to 55. The size of the upkeep and repair division varies from 45 to 1 in the remaining cases.

There are 2 institutions employing from 30 to 35 craftsmen, 4 from 25 to 30, 2 from 20 to 25, 3 from 15 to 20, 6 from 10 to 15, 11 from 5 to 10, and 8 fewer than 5. The types of tradesmen making up the division include carpenters, painters, plumbers, steamfitters, timers, electricians, blacksmiths, masons, and concrete workers.

For the efficient operation of the division, it should be in charge of a competent supervisory officer responsible to a superior administrative authority. In 22 of the land-grant colleges the upkeep and repair organization is under the direct supervision of the superintendent of buildings and grounds.

In 7 a repair foreman or supervisor has charge, in 3 the chief business officer, in 2 the resident architect or engineer, in 1 the head of the division of agricultural engineering, and in 1 the assistant superintendent.

There is one institution reporting that no one is in charge of the division, while another has broken up the organization into small units each in charge of an academic department head. The latter arrangement is decidedly disadvantageous, making it impossible for the division to work as a whole and imposing noneducational duties on members of the educational staff.

The officer in charge of the upkeep and repair division is responsible to the president in 14 institutions, to the chief business officer in 12, to the superintendent of buildings and grounds in 7, and to the resident or supervising architect in 2. In the case of 10 institutions information concerning the final authority over the organization was not furnished.

The work assigned to the division varies in the different institutions. The organization confines itself to ordinary repairs and remodeling at 22, while in 21 its work includes the erection of new buildings and other types of major construction. In one case all new buildings are constructed by the division, in another new buildings costing less than $40,000, in a third less than $15,000. The division constructs all small buildings in eight institutions. Major construction jobs are also performed by the organization in connection with service connections, such as water, sewerage, heat, and electricity, in new buildings after they have been completed by outside contract. There are nine institutions where the division is responsible for this type of work. The installation of equipment in new buildings up to a cost of $25,000 is done by the division at one insti-

tution and the painting in three other instances. It is obvious that the college occupies a position of advantage when it is justified in maintaining an upkeep and repair organization sufficient in size, personnel, and equipment to handle new construction work. Where the bids on new buildings by outside contractors are high, the institution may utilize its own division in erecting them. In 14 instances the institution, through its repair and upkeep division, submits estimates on the cost of all new buildings in competition with outside firms.

A systematic procedure should be adopted for the conduct of the work of the repair upkeep division if economic and business practices are to be followed. One of the first essentials is that the division prepare an estimate of the actual cost prior to the issuance of an order for repair work. Thirty-six institutions report that estimates are prepared on all repair jobs before authority is given for their performance, while in the other seven no estimates whatever are made. There is a difference in the basis upon which the estimates are prepared. In 28 cases they are made on the actual cost basis and in the other 9 instances allowances for overhead are also included in the estimates. The officers to whom the estimates are submitted differ in the various institutions submitting returns.

At 5 institutions the estimates are submitted to the president, at 9 to the superintendent of buildings and grounds, at 14 to the chief business officer, at 6 to the deans or department heads, at 3 to the purchasing agent, at 1 to the supervising architect, and at 1 to the committee on buildings and grounds. Final authority to issue the order for the division to proceed with the repair work is vested in the president in 13 institutions, the chief business officer in 17, the resident architect in 2, the buildings and grounds committee in 3, the superintendent of buildings and grounds in 2, the head of the department in 1, and the board of trustees in 1.

It is evident that dissimilarity exists in the administrative procedure among the different institutions in the handling of estimates and the issuance of orders for repair work. The upkeep of the physical plant is clearly a part of the responsibilities of the business organization and both authority and control over the operations of the division should, therefore, be concentrated in the chief business officer. A lack of proper supervision of the repair and upkeep work was found in 12 institutions where craftsmen are permitted to do repairing without a specific work order from the superintendent in charge.

Service of Utilities

In the management of the physical plant provision must be made for services, such as heat, light, and power. Because of the heavy expense involved in the furnishing of utilities of this type, the cost should be reduced to the minimum and an economical system adopted for its operation.

As the buildings of the land-grant colleges are ordinarily located on a single campus and are grouped in close proximity to each other, the most efficacious method is the establishment of a central power plant. If properly equipped with boilers, engines, motors, and dynamos, this plant should be capable of providing the necessary heat, light, and power to meet all the needs of the institutions. Of the 43 institutions submitting reports, it is found that 38 have established central power plants, while 5 others do not have such plants. In the latter cases, the buildings are heated individually, while light and power are purchased from outside sources. As the great majority of the institutions have central power plants the discussion will be confined to them.

Due to the inadequacy of data, difficulty was encountered in ascertaining the line of administrative control over the central power plant in the different institutions, although in most cases it is under the general supervision of either the chief business officer or the superintendent of buildings and grounds. Accurate information, however, was obtained on the officer in immediate charge of the plant. At 14 a chief engineer is the responsible head, at 12 a supervisor or foreman, at 2 the resident or supervising architect, at 1 the head of the mechanical engineering department, and at 9 the superintendent of buildings and grounds exercises personal supervision. The personnel making up the organization for the operation of the plant includes engineers, firemen, stokers, and other laborers, and varies according to the amount of equipment.

The number of employees in 1 institution ranges between 25 and 30, in 2 between 20 and 25, in 6 between 15 and 20, in 6 between 10 and 15, in 13 between 5 and 10, and in 9 fewer than 5. Data collected for the year 1928 discloses that the pay roll of wages and salaries paid the employees in 1 institution amounted to $44,000, in 2 from $30,000 to $35,000, in 2 from $25,000 to $30,000, in 2 from $20,000 to $25,000, in 4 from $15,000 to $20,000, in 4 from $10,000 to $15,000, in 8 from $5,000 to $10,000, and in 4 less than $5,000.

A further conception of the operation of the central power plants in the different colleges is secured from records of the consumption of fuel in the course of a single year. The returns show that for the year 1928 a total of 388,200 tons of coal, 14,344 barrels of oil, and 84,804,000 cubic feet of natural gas were consumed by the plants of the 38 institutions. Whether the college is located in a warm or cold climate is a decisive factor in determining the amount of fuel used. There was one institution where the consumption of coal amounted to 42,000 tons while in the case of another but 400 tons were necessary to operate its power plant.

The amount of coal used in 1 college varied from 35,000 to 40,000 tons, in 2 from 30,000 to 35,000, in 1 from 25,000 to 30,000, in 2 from 20,000 to 25,000, in 1 from 15,000 to 20,000, in 5 from 10,000 to 15,000, in 9 from 5,000 to 10,000, while in 12 cases less than 5,000 tons were consumed.

Three institutions reported that their plants were operated with fuel oil instead of coal, the consumption being 7,500 barrels in 1, 6,600 barrels in a second, and 244 barrels in a third. Only one college, Oklahoma Agricultural and Mechanical College, used natural gas, 84,804,000 cubic feet being consumed.

The principal functions of the central power plants are to furnish heat and electric current for light and power. In the manufacture of electric current it is found that heat is a by-product of a majority of the college plants while in others the production of heat is the main function. The basis upon which the plants are operated is shown in the proportion of live steam used for heating purposes. Of the 32 institutions reporting on the point, the returns indicate that there are 13 where 100 per cent of the steam for heating consists of live steam. In the plants of the remaining institutions heat is provided both by live and exhaust steam.

There are 4 plants where 90 per cent of the steam used for heating is live steam and 10 per cent exhaust steam, 2 where 80 per cent is live steam and 20 per cent exhaust steam, 2 where 70 per cent is live steam and 30 per cent exhaust steam, 4 where 60 per cent is live steam and 40 per cent exhaust steam, and 7 where 50 per cent is live steam and 50 per cent exhaust steam. In 1 college the heat consists of 10 per cent live steam and 90 per cent exhaust steam manufactured by the plant while in another steam for heating is made up of 1 per cent live and 99 per cent exhaust.

The size of the heating systems for which the central power plants supply heat is shown in the number of square feet of direct radiation contained in them. Three of the land-grant colleges have immense systems, the steam radiation amounting to as high as 500,000 to 550,000 square feet. Another institution reports 406,000 square feet of steam radiation and a fifth 312,000 feet.

There are 3 colleges, the heating systems of which contain from 200,000 to 225,000 square feet of steam radiation, 3 between 175,000 and 200,000 square feet, 1 between 150,000 and 175,000 square feet, 3 between 125,000 and 150,000 square feet, 1 between 100,000 and 125,000 square feet, 8 between 75,000 and 100,000 square feet, 7 between 50,000 and 75,000 square feet, and 3 between 25,000 and 50,000 square feet. According to the returns of 4 colleges their heating systems include from 26,000 to 272,000 square feet of hot water radiation in addition to steam radiation.

Expense of operating the plants is at considerable variance. This is indicated by the information furnished on the cost of evaporating 1,000 pounds of steam in the various institutions. Due to the fact that a number of colleges included overhead in their computation while others made their calculation on a basis of fuel and labor expense only, the figures presented are not altogether comparable, but they provide nevertheless a fairly satisfactory standard of comparison. The highest cost of evaporating 1,000 pounds of steam in any single institution was 90 cents and the lowest was 20 cents with an average for the 26 institutions submitting returns of 38 cents.

In 2 cases the cost ranged from 55 to 60 cents, in 3 from 50 to 55 cents, in 2 from 45 to 50 cents, in 1 from 40 to 45 cents, in 3 from 35 to 40 cents, in 8 from 30 to 35 cents, in 4 from 25 to 30 cents, and in 2 from 20 to 25 cents.

Where the cost of evaporating 1,000 pounds of steam exceeds the average, it would appear advisable for the head of the physical plant department to conduct an inquiry for the purpose of ascertaining the cause and with a view of reducing the operating expense, if possible. The production of the power plants of 8 institutions is so large that they are enabled to sell their surplus service. In 24 institutions all or part of the service is purchased from outside sources.

New Construction

To meet the increasing needs for additional space, State appropriations are made regularly or income from mill-tax levies is available for the erection of new buildings in the case of a number of the institutions. In others a comprehensive program of new construction has been adopted extending over a period of years. Building operations, therefore, are conducted on an extensive scale throughout the land-grant college group and procedure for their control and administration has become an important responsibility.

An examination of the reports shows that the construction of new buildings and additions to the physical plants of 12 institutions is under the full or partial control of State agencies, while in 31 the work is done under the jurisdiction of the governing boards. There are also nine institutions where the State control extends to major repairs and remodeling of the old plant in addition to all new construction. The exercise of control by State agencies over new construction is generally disadvantageous, due to the lack of familiarity of State officials with the particular types of buildings essential to higher educational institutions. Such an arrangement also results in long-distance administration and supervision, complicated procedure, and frequently in conflict of authority. Continuity in design is also made more difficult because of changing administrations. On the other hand, where physical plant extensions are under the direct control of the governing bodies, responsibility is centralized and localized in the constituted authorities of the institutions who are closely in touch and vitally interested in the proper conduct of the work, and who are more permanent in tenure.

Funds for the erection of new structures in the great majority of the land-grant colleges are obtained through specific appropriations of the State legislatures, through the segregation for building purposes of a portion of their incomes from mill-tax levies and through special taxes in a few instances. There are some institutions, however, that are authorized to construct new buildings by bond issues.

A particular inquiry was conducted into the question, the results of which showed that all types of buildings may be constructed by bond issues by five institutions, only dormitories or resident halls by three, and only revenue-producing buildings by four. A general statute covers the authorization in four States and special legislation is necessary authorizing the construction of each individual building in three. Authority must be granted by a special election in one State.

The procedure followed and the machinery set up for the administration and supervision of physical plant improvements differ widely in the various institutions. For this reason a detailed study is necessary to obtain an adequate conception of the lines of authority and responsibility. The first step in new construction is to secure architectural services. According to the reports, such services are obtained through the State architect at 4 institutions, through the regular university architect at 5, through an architect employed by the State agency at 3, and through an architect employed by the governing board at 24. Both the State and university architect provide the services in three other cases, the State architect and the architect employed by the governing board in three, and the university architect and the architect employed by the governing board in three. The basis of compensation for architectural service varies in the several institutions. There are 31 where the architect is paid on a per cent of cost basis, 7 where he is compensated on a direct salary basis, and 3 where he is remunerated on a contract basis. That a widely varying number of officials exercise final authority over the architects employed to handle physical plant extensions is indicated by the returns. In 13 institutions the architect is responsible to the governing board, in 6 jointly to the governing board and the president, in 13 to the president only, in 4 to the chief business officer, in 2 to the institutional committee on physical plant and equipment, in 1 to the dean of engineering, in 1 to a State commission, in 1 to the State board of agriculture, and in 1 to a person appointed by the board of trustees.

Due to the differences in the terms and provisions of the laws covering the letting of contracts for public improvements in the different States, the procedure for securing, receiving, and opening bids varies considerably. Bids are secured upon invitation in 5 of the institutions, by formal advertisement in 27, and both by invitation and formal advertisement in 8 others. In cases where the colleges advertise for bids, insertions covering a period of one month are required at 13, of three weeks at 8, of two weeks at 7, and of one week or less at 3. There is one institution which constructs all of its own buildings, no bids being asked nor contracts awarded. A

lack of uniformity among the institutions is found in the authorities responsible for receiving and opening the bids.

The governing board is charged with this responsibility in 23, the president in 3, the chief business officer in 5, the head of the agricultural engineering division in 1, the secretary of the institutional board of administration in 1, the State architect and a committee of the governing board in 1, the State department of administration and finance in 1, the State building commission in 1, the State purchasing agent in 1, the State commission of institutions and agencies in 1, and the State board of agriculture in 1.

It is obvious that the State governments have assumed major control of this phase of the physical plant extension in a number of the colleges, a situation that is not altogether advantageous.

While a definite plan of procedure has been adopted in most of the institutions for the development of architectural plans for new buildings, there is considerable disparity in the practices.

Requirements for the buildings are received by the architect from the president at 16 colleges, the governing board at 7, the divisional or academic department heads at 10, the dean of engineering at 1, a building committee at 4, the superintendent of buildings and grounds at 1, the university cabinet at 1, and the chief business officer at 1.

The presumption is that in the drawing up of the plans the architect designated for the work would consult with practically the same officials from whom the requirements were received. The reports of the survey show, however, that in many cases he confers with an entirely different set of officials. The architect consults with the president and the building committee of the governing board in 6 institutions, with the president only in 19, with the chief business officer in 4, with the deans and department heads in 6, with an administrative and faculty committee in 4, and with the superintendent of buildings and grounds in 2. The governing board in all cases finally approves the plans when completed by the architect, but at 11 land-grant colleges they must be submitted to a State agency or official for their approval before actual work on the new construction may be commenced.

Of these institutions, the State architect or engineer must officially approve the plans in 3, the State board of finance and control in 1, the State board of accounts in 1, the State board of examiners in 1, the State commissioner of departments and agencies in 1, the State insurance commissioner in 1, the State director of public works in 1, and the State finance commissioner in 1.

After the bids are received and opened, it is customary to refer them for examination and recommendation for award of contract to specially selected officials or groups of officials. In 28 of the land-grant colleges where control over the procedure for new construction is retained by the institutions, the bids are referred to a variety of governing, executive, and administrative officers.

The returns disclose that they are referred to the board of trustees or a committee of the board in 15; to the architect in 6; to the president and the architect in 2; to the president, architect, and university attorneys in

1; and to a committee composed either of the chief business officer, the superintendent of buildings and grounds, the dean of engineering, or others directly concerned in 4. In the 10 colleges where State agencies exercise jurisdiction, the bids are examined and recommendations for awards made by the State board of public works jointly with the governing board in 1, the State department of administration and finance in 1, the State purchasing agent in 1, the State architect or engineer in conjunction with the university architect in 3, the State board of agriculture in 1, and the State commissioners of finance in 1.

Final awarding of the contract is made by the governing bodies at 31 institutions and by the president after approval by the executive committee of the board of trustees in 1.

In the remainder State control is exercised, the contract being awarded by the State architect on authority of the business and building committee in 1 college, the State business manager in 1, the State board of agriculture in 1, the State building commission in 1, the State purchasing agent with the approval of the governing board in 1, the State commissioner of institutions and agencies in 1, the State commissioner of education in 1, and the State director of public works and the governing board in 1.

In order to make the contracts legal, they must be signed by official representatives of the State governments in 12 of the land-grant colleges.

An examination of the reports shows that the governor, State architect, and chief engineer must affix their signatures in 1 State, the attorney general and territorial auditor in 1, the attorney general in 1, the members of the State building commission in 1, the State board of examiners in 1, the State commissioner of education in 1, the State board of agriculture in 1, the State business manager in 1, the president and secretary of the State commission of institutions and agencies in 1, the president and secretary of the State board of administration in 1, and the director of the State board of public works and the secretary of the governing board in 1. Where the institutions have full authority over the awarding of contracts for new buildings, they are signed by the president of the governing body at 6; the president and secretary of the governing body at 1; the executive committee of the board of trustees at 1; the university president at 3; the president, business agent, and chairman of the executive committee at 1; the chairman of the executive committee at 1; the chairman of the governing board and the university president at 1; the full membership of the board of trustees at 2; and the chief business officer at 3. Upon the question of whether contracts may be awarded if the bids exceed the architect's estimate of construction costs, it was found that 31 institutions permit the awarding of contracts under such circumstances.

Supervision of the work of construction is an essential part of the administration of building operations. Attention has been given this matter in all the land-grant colleges. In addition, it is found that in 12 cases the State government also supervises the work.

Institutional supervision is conducted by the architect in 22 colleges, by the superintendent of buildings and grounds in 9, by the construction superintendent in 4, by the chief business officer in 3, by a person designated by the governing board in 1, by the dean of the agricultural engineering division in 1, and by a special inspector in 1. The State governments supervise the work through the State architect or a representative at 9 institutions, a special State building inspector at 2, and by the State engineer at 1.

In the case of disputes, provision for arbitration is contained in the building contracts of 27 instances while the contracts of 6 others provide no definite arrangement for their settlement. Information was not supplied on this point by the other institutions.

Chapter VII.—Summary and Conclusions

Reorganization of financial administration, business procedure, and accounting systems is an outstanding need of the land-grant institutions. Business management and finance, as they at present exist in some of the colleges, are inadequately organized and based on unsound principles.

(1) A primary essential is recognition of the fact that in every institution there are two distinct types of activities—educational and business. The business organization should function as a service agency to the educational organization and should be responsible for the handling of all its business and financial affairs. The educational organization should be responsible for the performance of academic and educational functions. The intermingling of these two organizations is found in many of the colleges. Educational officers and members of the teaching staff are frequently charged with duties belonging to the business administration which results in division of responsibilities and in improper functioning of both the educational and business organizations.

(2) The specific functions that should be assigned to the business organization are the receipt of money, handling of expenditures, custodianship of funds, accounting, purchasing, operation of physical plant, financial control of residence and dining halls, management of auxiliary enterprises, and all other services involving the collection and disbursement of funds. These activities should be concentrated in a central business office under the control of a chief business officer. Any plan of distributing part of the business functions to independent agencies, to faculty and administrative committees, and to deans of colleges or department heads—situations that are found in a number of the institutions—can only lead to confusion and to complicated procedures.

(3) The chief business officer should serve directly under the president. He should be selected by the president and his appointment should be recommended by the president to the governing board. The heavy responsibilities involved in the management of the business affairs of a land-grant institution make it essential that the chief business officer be of unquestioned ability and specially trained in business administration. To obtain service of this type

requires the payment of a salary commensurate with the complex duties and large responsibilities of the office.

(4) Notwithstanding that business management and finances constitute a most important phase of the land-grant institutions, no equally important aspect of the institutions has been more neglected. Governing boards and chief executives frequently content themselves with general appraisal of the progress of their institutions. Genuine knowledge, however, is obtainable concerning the exact status of the institutions, the progress that is being made, the nature of the educational program, and the attainment of educational objectives by specific analysis of financial management. A financial report giving detailed items of income and expenditure for a fixed year as compared with previous years, providing such records are kept, reveals information that is fundamental to revision of policies and changes in procedures. The proportion of support received from different sources over a period of years should disclose data of intrinsic value in securing additional revenue. Comparative figures concerning expenditures for various activities from year to year present a valuable basis of judgment with reference to the equitable distribution of support.

(5) The land-grant colleges are State-owned, State-controlled, and State-operated. It is sometimes assumed, therefore, that the major part of their support is derived from State sources. The analysis of income presented by preceding chapters of this report shows that for the land-grant institutions as a whole but 47 per cent of the total gain made in revenues between 1915 and 1928 was actually contributed by the States as compared with 53 per cent from such other sources as Federal funds, private gifts, student fees, endowment yields, and institutional earnings. Moreover, the percentage of increase from each of these sources with the exception of Federal funds was greater than from the State during this period. For the year 1928, State revenues of all the institutions represented but 50 per cent of total receipts while in the case of 22 individual institutions the amount of State support was less than one-half of their total income.

(6) State governments should furnish funds for the support of the institutions in such form that the governing boards and executive officers intimately acquainted with the needs of the institutions will be free to expend the money to best advantage in accomplishing the educational objectives of the institutions. This can not be accomplished when segregated State appropriations are made limited to specific purposes and for particular branches of the institutions. The most efficacious form of appropriation is that which provides

funds in lump sums covering two items only, general operation and maintenance and permanent improvements.

(7) The initial conception of the land-grant institutions was that they should be free public agencies of higher education open to all youthful citizens of the State. That a compromise with this principle has long since been made is indicated by the multitude of fees levied by the different institutions. Since the assessment of fees affects the basic public character of the institutions, final authority in levying them should be rested in the governing boards only except where the State governments through their constitutions and their legislatures have retained jurisdiction. In some of the institutions this power is held by executive, administrative, and educational officers.

(8) The institutional budget systems operated by the land-grant institutions are at wide variance. Budget classifications are not harmonized with accounting systems in many instances. The result is that two systems of handling financial records are maintained in the same institution. Some of the budgets fail also to include all of the activities while others do not follow the lines of institutional organization. These delinquences are largely responsible for the confusion of methods in fiscal administration that at present prevail. Complete reorganization of budget systems is a vital need in many instances. A more uniform plan of budget-making should also be established throughout the entire group of land-grant institutions.

(9) Not only is uniformity generally lacking in the accounting systems of the land-grant institutions but many of the systems in operation are inadequate and incomplete. In a number of cases detailed information regarding income and expenditures can not be supplied. Some of the accounting systems do not permit the compilation of a simple balance sheet showing assets and liabilities. Others use only the most general classifications. No more important problem confronts many of the individual institutions than an entire revision of their bookkeeping methods. No more important problem confronts the land-grant institutions as a group than the adoption of systems of classification that will permit of financial and educational comparisons.

(10) Both internal and external audits of the accounts should be made. The internal audit should consist of a continuous check of all financial transactions. The external audit should include verification of the various items and testing of their accuracy by outside examiners at periodic intervals. Although audits by outside agencies are conducted regularly in the case of all the land-grant institutions, the thoroughness and value of these checks vary greatly among the institutions. Few of the institutions operate effective continuous in-

ternal checks of accounts and operations; they should all maintain such a system.

(11) Property accounting is on an unsatisfactory basis in many of the land-grant institutions. Since millions of dollars are vested in both permanent and movable property, it would seem that an accurate inventory of physical holdings would be maintained everywhere. Yet only a limited number of the colleges have modern systems of perpetual inventories; in the remainder where periodic inventories are made they are frequently superficial and perfunctory. In some instances inventories are conducted at such wide intervals as to destroy their real value. If their business affairs are to be conducted upon a sound basis, it is incumbent upon the institutions to install improved practices in property accounting and inventory taking.

(12) While an orderly procedure for handling purchasing has been generally established in the land-grant colleges, illogical arrangements exist in some cases where educational officers or faculty and administrative committees instead of the central business officer are charged with the approval of requisitions. A number of colleges compelled to make their purchases through central State agencies are hampered by long-distance control. There are even instances in which the authority over purchasing is divided between State officials and local institutional officers. Encroachment of State agencies upon institutional purchasing is due in large measure to the failure of the institutions to organize proper procedures and to establish centralized institutional control over this important function.

(13) The failure of many land-grant institutions to centralize control, provide a systematic procedure, and adopt definite regulations over travel, has resulted in confusion of practices and in the imposition of restrictions of every conceivable character. In a number of institutions authority over travel has been taken entirely out of the hands of local officers and assumed by State governments. The State exercises partial direct control in other cases. There now remain only 25 institutions that still retain complete control over travel by members of their staffs, a situation worthy of the concern of the administrative officers of all institutions, since travel of the staffs for educational purposes constitutes an important element of staff management. Expenditures for travel are made largely out of public funds. It is essential that the institutions themselves establish a proper system of centralized control and that a definite policy be adopted covering the issuance of travel orders. No travel should be sanctioned except when required by public interest or institutional needs. Control over all travel should be vested in the chief executive officer under limitations prescribed by the governing board.

(14) A wide variety of plans, procedures, and arrangements for conducting auxiliary enterprises, service departments, and supervised organizations prevails among the different institutions. Not only do the methods of operating these projects vary as between institutions, but within the same institution. The outstanding fault found in most cases is that fiscal control and management have not been centered in the chief business officer; projects have been placed under the control of faculty or administrative officers and committees who have neither the time nor the inclination to exercise business-like supervision. In the case of many institutions, no attempt has been made to organize central service departments, although economies would result therefrom. In other institutions no satisfactory method of handling the finances of supervised organizations has been put into force. That the failure to proceed along sound business principles in the management of service and auxiliary enterprises is resulting in wasteful administrative practices is evident from the chapter of this report that discusses each of these enterprises in detail.

(15) An important need confronting the land-grant institutions is that they retain complete control over the financial affairs of athletics and that all athletic business be conducted through regular institutional channels. All moneys should be collected and disbursed by the chief business officer. This plan is not being followed in all the colleges. In some institutions a committee or board of faculty members has been delegated responsibility for collecting and disbursing athletic moneys. In others the authority has been vested in specially appointed officers, such as graduate managers and athletic directors, while some institutions still permit student athletic organizations to exercise control and handle the funds. Boards of trustees should take definite steps toward the reorganization of the financial administration of athletics in such cases.

(16) The machinery for the administration of the physical plants is extremely inefficient in a number of the institutions. Centralized authority over the assigning of building and room space is frequently lacking. The result is that it is impossible to determine whether plants are being utilized to their fullest capacity. This involves the keeping of accurate records concerning the actual amount of classroom and laboratory space contained in the plant. In many institutions no such detailed records are kept. Without such data waste is certain to result in space distribution and difficulties will be encountered in the assigning of rooms on a systematic basis.

PART IV.—WORK OF THE REGISTRAR

The maintenance of accurate records of the student body is closely interrelated with the educational programs and the academic functions of modern institutions of higher education. Such records provide information of inestimable value in determining the efficacy of curricula offerings, in deciding the effectiveness of instructional processes, and finally in revealing whether the institutional objectives and aims are being achieved.

The duties of the registrar, upon whom falls the responsibility of keeping the records, are manifold. They include maintenance of records on accredited and nonaccredited high schools; examination of credentials for entrance; enforcement of admission requirements; recording of enrollments by colleges, by departments, by curricula, by classes, by resident and nonresident status, and by degree and nondegree courses; recording of geographic destribution of students; density of college population; of migration of students; of scholastic standing and grades of students; of fulfillment of requirements for degrees; and collection and collation of a great amount of other statistical data regarding every student attending the institution.

The following pages present a detailed study of the work of the registrars of the land-grant institutions.

Admissions

In recent years educators have devoted much time to the question of requirements for admission to college. The standards that at one time seemed to be satisfactory are now being questioned. Owing to the lack of uniformity in marking, the scholastic records of students fail to furnish a satisfactory basis for determining the student's qualifications for admission to the freshman class. So much is now being said in reference to intelligence tests and admission on the basis of ability that it hardly seems safe to predict what changes may be made in the future.

The purpose of this section is to record the standards and methods as to admissions used by different institutions in the hope that it may serve a useful purpose in the further study of this problem.

Admission to the Freshman Class

Number of units required for admission in 1927–28.—All the land-grant institutions report that they require of students graduating from 4-year high schools at least 15 units for admission to the freshman class. There seems to be a general agreement as to the number of units required and the specified units in English and mathematics. Institutions that admit students from the senior high school on 12 units in most cases will accept any 3 from the junior high school so as to conform to the usual requirement. For prescribed units by subjects and for the maximum units accepted in each group see Tables 1 and 2.

TABLE 1.—*Requirements for admission to the freshman class in land-grant institutions as to courses required, including the amount of credit and the maximum credits allowed in each course (for the year ending June, 1928)*

Institution	Required courses and number of units required in each course								Maximum number of units allowed in each course [1]					
	English	Algebra	Plane geometry	Foreign language	Social science	Biological science	Other subjects	Total	English	Mathematics	Foreign language	Social science	Physics and biological science	Professional and vocational
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Alabama Polytechnic Institute	3	1	1	0	1	0		6	4	4	4	4	2	4
Alaska Agricultural College and School of Mines	3	1	1	0	0	1		7	4	1	4	4	4	4
University of Arizona	3	1	1	0	1	1		7						
University of Arkansas	3	1	1	0	1	0		6	4	4				4
University of California	2	1	1	2	1	1		8						
Colorado Agricultural College	3	1	1	0	0	0		5	5	4	10	5	4	10
Connecticut Agricultural College	3	1	0	1	0	0		4	4	4	5	4	6	8
University of Delaware	4	1	1	2	1	1		10	4	4	4	1	2	3
University of Florida	3	1	1	0	1	1		7	4	4	4	4	4	4
Georgia State Agricultural College	3	1½	1	4	2	0		10½	4	3½	4	4	8½	4
University of Hawaii	3	1	1	0	0	0		5	5	4	4	4	4	5
University of Idaho	3	1	1	2	2	2		11						
University of Illinois	3	1	1	0	0	0		5	4	4				4
Purdue University	3	1	1	0	1	1		7						5
Iowa State College	3	1½	1	0	1½	0		7	4	4	4	4	4½	4
Kansas State Agricultural College	3	1	1	0	0	1		6	4	4	10	6½	8	10
University of Kentucky	3	1	1	0	0	0		5	4	4	10	4	10	4
Louisiana State University	3	1½	1	2	1	0		8½	4	4	3	4	5	2
University of Maine	3	1	1	4	1	0		10	4	4½				
University of Maryland	3	1	1	1	1			7	5	4	6	4	4	6
Massachusetts Agricultural College	3	1½	1	2	1	0		8½	4	3½	8	7	6	4
Massachusetts Institute of Technology	3	2	1	2	1	2	1	12	4	4	4	2	2	0
Michigan State College	3	1	1	0	0	0		5						
University of Minnesota	3	1	1	0	0	0		5	4	3	4	4	10½	9½
Mississippi Agricultural and Mechanical College	3	1	1	0	2	0		7	4	4	4	4	6	4

[1] No institution reported the maximum number of units in "other subjects."

TABLE 1.—*Requirements for admission to the freshman class in land-grant institutions as to courses required, including the amount of credit and the maximum credits allowed in each course (for the year ending June, 1928)*—Continued

Institution	Required courses and number of units required in each course								Maximum number of units allowed in each course					
	English	Algebra	Plane geometry	Foreign language	Social science	Biological science	Other subjects	Total	English	Mathematics	Foreign language	Social science	Physics and biological science	Professional and vocational
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
University of Missouri	3	1	1	2	1	1		9	4	4	8	5½	5	8
Montana State College	3	1	1	2	1	2		10						
University of Nebraska	[2] 2	0	1	1	0	0		4	4	3	3	9	9	4
University of Nevada	3	1	1	0	0	0		5	6	4	4	4	4	5
University of New Hampshire	3	1	1	0	1	1		7	4	4	4	4	3	4
Rutgers University	3	2	1	2	0	0	1	9	3	4	8	4	4	2
Cornell University	3	1½	1	5	0	0		10½	4	4	7	1	3	1
North Carolina State College	3	1½	1	0	2	1		8½	4	2½	4	2	1	0
North Dakota Agricultural College	[3] 3	0	0	0	0	0		10	8	8	8	8	8	5
Ohio State University	3	1	1	4	1	2		12	4	3½	8	4	4	3
Oklahoma Agricultural and Mechanical College	3	1	1	0	1	1		7	6	5½	8	7	8½	6
Oregon Agricultural College	[3] 3							10	5	3½	4	5	4	5
Pennsylvania State College	3	1	1	0	1	1		7	6½	10	8	9	9	8
Rhode Island State College	3	1	1	2	1	1		9	4	3	4	2	2	
Clemson Agricultural College	3	1½	1		2	0		7½	4	4½	8	4	5	4
South Dakota State College	3	1	1	0	1	1		7	5	4	6	4	4	4
University of Tennessee	3	1½	1	4	0	0		9½	4	4	9½	5	3	3
Agricultural and Mechanical College of Texas	3	2	1		2	1		9	4	4	4	4	4	4
Agricultural College of Utah	3	1	1	0	1	1		7	2	4	8	8	9	5
University of Vermont	3	1½	1	2	1	0		8½	3	4½	10	4	4	4
Virginia Agricultural and Mechanical College	4	2	1½	0	1	1	1	10½	4	4½	4	4	4½	6
State College of Washington	3	1		0	1	1		6	3			1	1	
West Virginia University	4	1	1	0	0	0		6	5	4	10	6	5	4
University of Wisconsin	2	1	1	[4] 2	(4)	0		6	5	4		1-3	3	4
University of Wyoming	3	1	1	2	2	1		10	4	3½	6	7	6	5

[2] From last 3 years of high school.

[3] 7 other units required in academic groups.

[4] May be in history or science.

TABLE 2.—*Specified units by subjects for general admission to college and the maximum and minimum units that may be accepted*

Subject	Number of institutions specifying the units indicated							Number of institutions accepting										
								Maximum							Minimum			
	½ to 1	1½ to 2	2½ to 3	3½ to 4	5	6	No limit	½ to 1	1½ to 2	2½ to 3	3½ to 4	4½ to 5	5½ to 6	No limit	½ to 1	1½ to 2	2½ to 3	3½ to 4
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
English		3	44	4						4	35	6		1	2	3	42	1
Mathematics	3	25	16	2				1		3	34	4	1	2	3	3	1	1
Algebra	31	12						15	26	1				1	34	10		
Plane geometry	43							41	4						45			
Advanced arithmetic	1							29			1			1	27			
Advanced algebra	5							34	3					1	36			
Trigonometry	1							45							40			
Foreign language	2	17	2	3	1					3	17		3	3	6	10	1	
French		5	1			1			3	8	31			1	23	20		
German		5	1						3	8	31			1	23	20		
Greek		3	1					1	2	14	22			1	23	18		
Latin		3		1					3	3	37			1	24	20		
Spanish		4	1					1	4	9	28			1	25	19		
Social science	23	8						3	3		20	5	2	1	6	3		
History	21	3					1	2	1	4	33	1		1	39	3		
Civics	3							38	2	1	1			1	40			
Political economy								34		1				1	35			
Sociology								32	2	1					36			
Biological and physical sciences	21	4		1				2	4	5	12	6	2	3	10			
Biology	2					1		38	4						42			
Botany								42	1					1	42			
Chemistry	4							35	7	1				1	45			
Geology								34						1	33			
Physics	5							39	4					1	45			
Physical geography								43						1	42			
Physiology and hygiene								40	1					1	41			
Zoology								42	1					1	42			
General science								43						1	43			
Teacher training								4	3	5	2				8	1		
Psychology								24	3					1	27			

TABLE 2.—*Specified units by subjects for general admission to college and the maximum and minimum units that may be accepted*—Continued

Subject	Number of institutions specifying the units indicated							Number of institutions accepting										
								Maximum							Minimum			
	½ to 1	1½ to 2	2½ to 3	3½ to 4	5	6	No limit	½ to 1	1½ to 2	2½ to 3	3½ to 4	4½ to 5	5½ to 6	No limit	½ to 1	1½ to 2	2½ to 3	3½ to 4
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Education								13	3		1			1	18			
Teaching experience								4			1				6			
Agriculture								3	3	4	13	2		1	24			
Animal husbandry								11	10	1	2	1			25			
Soils								14	8		2	1			26			
Crops								11	10		3	1			25			
Dairying								14	8		2	1			25			
Home economics								2	5	6	6	2			19			
Clothing								8	12		1	1			21			
Cooking								8	12		1	1			22			
Dietetics								11	7		2	1			19			
Industrial arts								3	2	3	5	2			13			
Drawing, mechanical								19	13		3	1			33			
Drawing, free-hand								19	12		3	1			33			
Shop work								7	19	3	5	1			33			
Commercial subjects								3		3	4	2	1		12			
Bookkeeping								18	15	1		1	1		34			
Commercial law								34	2			1			36			
Commercial geography								33	2			1			35			
Commercial arithmetic								32	2		1	1			35			
Shorthand								18	12	2		1			30	2		
Typewriting								19	8			1			26	1		
Penmanship								6				1			8	1		
Fine arts								5	3		1	1			11			
History of music								22	4	1		1			26			
History of art								21	1		1	1			21			
Miscellaneous								2			1	1			4			
Physical education								5		1					5			
Military science								9		1					10			

Number of units required in 1900, 1910, 1920.—In 1900, for admission to the college of arts and sciences, three institutions required only 8 units; two required 9; one required 4; and one required 5 units. Five institutions required 15 units. (For 1900 the institutions were asked to translate their requirements into terms of Carnegie units. By 1910 practically all institutions had adopted the Carnegie unit as the basis of admission.) In 1900 the average requirement of all institutions was 11.5; in 1910, 13.5; and in 1920 the average had increased to 14.7. (See Table 3 and Chart 1.)

TABLE 3.—*Changes in requirements for admission to freshman class by land-grant institutions*

Unit	Year	Arts and sciences		Agriculture		Home economics		Engineering	
		Average units required	Range	Average units required	Range	Average units required	Range	Average units required	Range
1	2	3	4	5	6	7	8	9	10
Required	1900	11.5	4–16	9.7	3–15	8.9	3–15	10.7	4–15
	1910	13.5	7–15	13.3	7–16	13.7	7–16	13.5	7–15
	1920	14.7	13–15	14.8	13–16	14.7	14–16	14.9	13–16
	1928	15	12–16	15	12–16	14.8	9–16	15	12–16
Prescribed	1900	9.8	3–15	7.6	2–14	6.7	3–14	7.6	5–12.5
	1910	9.2	6–15	8.1	4–12	8.4	4–12.5	9.1	4.5–13
	1920	7.9	3–11.5	7.3	3–11	7.4	3–11	8	3–13
	1928	8	3–13	7.0	3–11	7.2	3–11	8.1	3–14
Vocational	1900	2.2	1–6	3.1	1–5	2.2	1–5	1.8	1–5
	1910	2.3	1–6	3.8	1–8	4	2–6	3.6	1–8
	1920	3.8	1–6	4.3	1–10	4.6	2–10	4.3	1–10
	1928	4	1–6	4.6	1–10	4.5	1–10	4.4	1–10
Mathematics	1900	2.3	1–4	2.2	1–4	2	1–3	2.7	1–4
	1910	2.2	2–35	2.3	1.4	2.2	1–3	2.9	1.5–4
	1920	2.2	1.5–4	2.2	1–3	2.2	2.5–3	2.7	1.5–3.5
	1928	2.2	1.5–4	2.1	1–3	2	1–3	2.9	1.5–4
Physical and biological sciences	1900	1.5	1–3	1.6	1–3	1.8	1–3	1.4	1–2
	1910	1.2	1–3	1.1	0.5–2	1.2	0.5–2	1.2	1–2
	1920	1.2	1–2	1.3	1–3	1.2	1–2	1.2	1–2
	1928	1.1	1–3	1.2	1–5	1.2	1–5	1.2	1–4.5
English	1900	2.6	1–4	2.8	1–4	2.5	1–3	2.6	1–4
	1910	2.8	2–4	2.8	2–4	2.8	1–3	2.6	2–4
	1920	2.9	2–4	2.9	2–4	2.9	2.5–3	3	2–4
	1928	3	2–4	3	2–4	3	1–3	3	2–4
Social sciences	1900	1.1	1–2	1.3	1–2	1.1	1–2	1.2	1–2
	1910	1.3	0.5–2	1.2	0.5–2	1.2	0.5–2	1.1	0.5–2
	1920	1.2	1–2	1.3	1–2	1.2	0.5–2	1.3	1–2
	1928	1.2	0.5–2	1.1	0.5–2	1.1	0.5–2	1.3	1–3
Foreign languages	1900	4	2–7	1.4	1–3	1.3	1–2	1.8	1–3
	1910	2.8	1–7	2.1	1–4	2.2	1–6	2	1–4
	1920	2.6	1–5	2.1	2–3	2.3	2–4	2	1–3
	1928	2.7	1–5	2.1	2–3	1	2–3	2.1	1–4

Repeating high-school courses in college for college credit.—The practice of institutions varies greatly with reference to allowing students to repeat high-school foreign language courses for college credit. Four institutions report that they allow students to repeat the fourth year of a foreign language for college credit. The third and fourth years may be repeated for credit in five institutions. The second, third, and fourth years may be repeated in only one institution. Purdue University reports that a student with less than two

years of foreign language is placed in a beginning course; and one with two or more years of foreign language is placed in an intermediate class. The Universities of Idaho, Tennessee, Minnesota, Delaware, Arizona, Rutgers University, and Connecticut Agricultural College will allow students to repeat foreign language if it was not required for admission. Students with surplus units may repeat the course for college credit. The University of Maryland will allow them to repeat the course with only one-half credit.

Review of the Changes in Admission Requirements from 1900 to 1928, by Colleges and by Subjects

Number of units required.[1]—In 1900 the arts and sciences colleges required 11.5 units. Of these 9.8 were prescribed. The home eco-

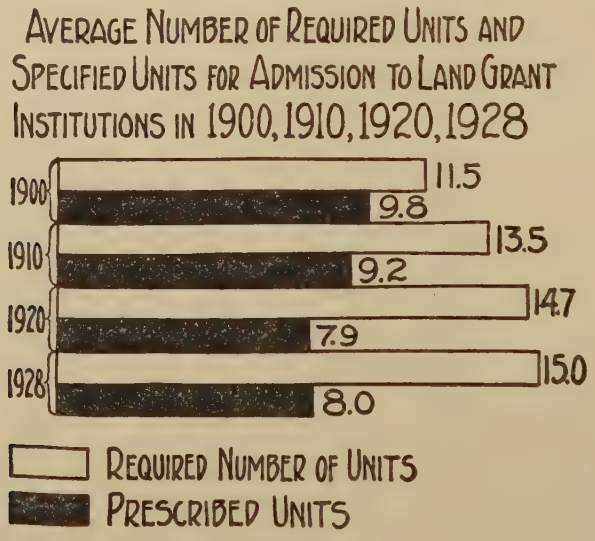

CHART 1

nomics colleges required the smallest number of units—8.9—of which 6.7 were prescribed. In 1900 approximately 75 per cent of the required number of units in all the colleges were prescribed. In 1928 the arts and sciences colleges required an average of 15 units. Of these eight were prescribed. The home economics colleges required 14.8 units. In 1928 approximately 50 per cent of the required number of units in all the colleges were prescribed.

English.—In 1900 the arts and science colleges required an average of 2.6 units in English, the agricultural colleges required 2.8, and the home economics colleges 2.5. In 1928 all the colleges required an average of three units in English.

[1] In each case the number of units given is the average for the period.

Mathematics.—In 1900 the number of mathematics units required ranged from 2 in the home economics colleges to 2.7 in the engineering colleges. In 1928 the greatest number of mathematics units—2.9—was required by the engineering colleges, the smallest number—2 units—was required by the home economics colleges. The arts and science colleges required 2.3 units in 1900, and 2.2 units in 1928. In 1928 two institutions did not require mathematics for entrance.

Foreign languages.—In 1900 the arts and science colleges required 4 units in foreign language. Requirements in the other colleges ranged from 1.3 units in the home economics colleges to 3 units in the vocational teacher-training colleges. In 1928 the arts and science colleges required 2.7 units in foreign languages. Requirements in the other colleges ranged from 2.2 units in the vocational teacher-training colleges to 1 unit in the home economics colleges. In 1928 there were 19 institutions that did not require any foreign language.

Social sciences.—In 1900 the arts and science colleges required 1.1 units in social sciences. Requirements in the other colleges ranged from 1 unit in the vocational teacher-training colleges to 1.3 in the agricultural colleges. In 1928 the arts and science colleges required 1.2 units in social sciences. Requirements in the other colleges ranged from 1.1 in agricultural colleges to 1.4 in vocational teacher-training colleges. In 1928 there were 16 institutions that did not require social sciences.

Physical and biological sciences.—In 1900 the arts and science colleges required an average of 1.5 units in physical and biological sciences as compared with 1.2 in the vocational teacher-training colleges and 1.8 in the home economics colleges. In 1928 the arts and science colleges required 1.1 units in physical and biological sciences as compared with 1.2 units in all other colleges. Twenty-two institutions did not require biological sciences.

Vocational units.—The number of vocational units accepted in 1900 in all colleges ranged from 1.8 in the engineering colleges to 4.5 in vocational teacher-training colleges. The number of vocational units accepted in 1928 in all colleges ranged from 4 in arts and sciences colleges to 4.7 in vocational teacher-training colleges.

Admission on certificate.—The practice of institutions varies greatly as to requirements for admisison on certificate. (Eleven institutions did not report.)

TABLE 4.—*Prescribed units for admission to the freshman class of land-grant institutions by subjects*

Subject	Number of institutions		Average number of units prescribed	Range
	Prescribing	Not prescribing		
1	2	3	4	5
English	51		3.0	2-4
Algebra	43	8	1.1	0-2
Geometry	43	8	.93	0-1½
Foreign language	25	26	1.0	0-5
Social science	24	27	1.0	0-2
Biological science	23	28	.5	.5-2

Graduates of accredited high schools.—Twenty institutions reported that they would accept all graduates of accredited high schools, and 20 report that they would not.

Graduates deficient in specified subjects.—Twenty-three institutions would admit students deficient in specified subjects. Of these, three would not admit students deficient in English or mathematics. Seventeen would require all specified subjects to be completed before coming to college. Purdue University admits such students if they live in Indiana and "exceptions are sometimes made in the case of students living outside of Indiana." A number stated that the deficiencies must be made up during the first year. Connecticut Agricultural College requires that the English and mathematics be made up.

Graduates deficient in the required number of units.—Thirteen institutions report that they allow students to enter conditioned in a number of units and 31 report that they will not. Massachusetts Agricultural College will admit a student deficient in as many as two units.

Nongraduates from accredited high schools.—Nongraduates of high schools who have completed the required number of units for admission to the freshman class, including the specified units, would be eligible for admission on certificate to 31 institutions. Twenty-one institutions would not admit such students on certificate. The University of Idaho will admit them upon a special letter of recommendation from the principal of the high school. Purdue University makes an exception in a few cases which are handled by the president and in a few in which students have attended some other college or university. The University of Minnesota requires a college ability test (test for proficiency in English).

Special recommendation of the principal.—Fifteen institutions report that students must be especially recommended for college

by the principal of their high school. Twenty-five institutions do not require special recommendations.

Rank in the class.—Nine institutions require that in order to be admitted on certificate students must come from a certain rank in the class. Thirty-one have no regulations regarding rank. The University of Nebraska discourages registration in certain courses by students in the lowest quarter of the class.

Difference in requirements for resident and nonresident students.—The University of Wisconsin and the University of Illinois require that nonresident students average 10 points above the passing grade, unless they are especially recommended for college. The University of Arizona requires nonresident students to meet the requirements of their own State. The University of Missouri requires that students from other States be in the upper two-thirds of their class. Colorado Agricultural College does not require any particular rank of students from its own State but does require it of students from other States. Rutgers University requires that students from States other than New Jersey rank in the upper three-fourths of the class. Oregon Agricultural College and the University of Maryland will accept from other States only students of high rank. Pennsylvania State College admits on certificate those in the first three-fifths of the class.

Difference in college and departmental requirements.—Twenty institutions report that if students are eligible for admission to one college or department in the institution, they will be admitted to it on certificate, with the privilege of making up deficiencies later for admission to the other colleges. Nineteen institutions report that they will not admit such students. One institution reports that students may enter the department to which they are eligible; after removing any deficiencies they may enter the college of their choice the second semester or the second year.

Graduates of nonaccredited high schools.—Eleven institutions admit on certificate students from nonaccredited high schools. Thirty-eight do not. Connecticut Agricultural College and the University of Tennessee require an examination in English and mathematics; Clemson Agricultural College, in English, mathematics, history, and one other subject; the University of Kentucky, in English, mathematics, and two other subjects of the student's selection; South Dakota State College, in English, algebra, American history and civics, and a language or natural science; University of West Virginia, in English (four units), mathematics (two units), group electives (seven units), and general electives (two units). The University of Florida requires an examination in the seven required units. Louisiana State University requires an examination in all the entrance subjects to a total of 16 units; the University of

Nebraska, an examination in all fundamental subjects and an intelligence test; Pennsylvania State College an examination on the senior year's work, or in all 15 units; Texas Agricultural and Mechanical College, an examination on all 15 units.

Blanket credit.—Eleven institutions will accept blanket credit to the full amount in each group. Thirty-one institutions will not. The University of Arkansas will accept blanket credit in each group except English. The University of Delaware and Rutgers University will allow blanket credit in their women's colleges but not in their men's colleges. The University of Florida will allow blanket credit in all groups except English and mathematics. In the English group practically all the institutions require one unit each in composition, English literature, and American literature. Eight institutions require these three subjects and theme writing and grammar in addition.

Limitations by charter or by law.—Forty institutions report that there are no limitations by charter or by law affecting their entrance requirements. Nine report that they work under such limitations. Cornell University is limited only in the case of veterinary science.

Records lost or destroyed by fire.—Where the applicant can present evidence of having completed a definite course or fraction of a course, 40 institutions will accept affidavits in place of lost records, 9 will not. Colorado Agricultural College will accept an affidavit made by a former official of the college, Massachusetts Agricultural College and South Dakota State College will admit such applicants upon examination.

Accrediting agencies for high schools.—In 34 States the high schools are accredited by the State department of education; in 4 States by the State department of education and the State university; in 6 States by the State university; and in 2 States by a group of colleges in the State.

Accrediting agencies for colleges.—In 6 States the State department of education rates colleges; in 4 the accrediting is in charge of a group of colleges in the State; in 13 the State university; in 2 the State department of education and the State university; and in 3 the State university and a group of colleges in the State. Fifteen institutions failed to give the information.

In 27 States the standards for accrediting were the same as those of the regional agencies. In five States the requirements were not the same. Eighteen institutions failed to report on this question. Thirty-nine of the land-grant institutions are members of regional accrediting agencies, and 12 are not members.

Admission of women to college courses.—Forty-seven institutions admit women to undergraduate work. Three institutions, Missis-

sippi Agricultural and Mechanical College, Clemson Agricultural College, and the Agricultural and Mechanical College of Texas, do not admit women. Forty-two institutions admit women to both undergraduate and graduate work on the same basis as men and four do not. The University of Illinois does not admit women to the curriculum in athletic coaching. The University of Minnesota admits women to all curricula except that of mines and metallurgy. The University of Florida admits women only to courses that are not offered at the Florida State College for Women; the women applicants must be at least 21 years of age and must have had at least two years of college work. The following table shows, for periods of 10 years, the number of institutions admitting women to undergraduate and to graduate instruction from 1866–1870 to 1920–1928.

TABLE 5.—*Admission of women to undergraduate and graduate work, by periods*

Period	Number of institutions	
	Undergraduate	Graduate
1	2	3
1866–1870	10	6
1870–1880	20	14
1880–1890	30	19
1890–1900	37	24
1900–1910	41	28
1910–1920	47	34
1920–1928	50	36

Admission to Advanced Standing

Admission of students from defunct institutions.—By defunct institutions this study means institutions out of existence before the standards of the regional accrediting agencies had been generally accepted. Thirty-five of the institutions reporting will allow conditional standing to students from defunct institutions and 12 will not. Most of those answering "yes" to this question qualified their replies by naming conditions under which credit might be obtained. Nineteen institutions will allow the credit after the satisfactory completion of a given amount of work in advanced courses in the fields in which the student is seeking credit. Four will allow credit only on the basis of an examination. One will require an examination if the record could not be obtained direct from the school. One handles each case individually and has no set rule. In the Virginia Agricultural and Mechanical College the matter is handled by the State board of education.

Admission of Special Students[1]

The term "special student" is used in this part of the study to designate those persons who for any reason had failed to satisfy the requirements for admission to college. It is noted in the replies given to the questions that some institutions included among the special students persons doing part-time work who had satisfied the admission requirements. Many teachers who would not be classed as special students under the definition given would fall in this latter class.

The institutions that admit special students seem to be in agreement that such students should be persons of mature age and that they should give evidence of ability to carry college work. Most of the institutions require that applicants shall have had practical experience in the field in which specialized courses are desired.

Montana State College and Rutgers University do not accept special students. The University of Nevada does not accept them from outside the State in the college of arts and sciences. Rhode Island State College reports that their special students are "usually resident in the community." Only one institution, the University of Tennessee, reports a definite limit on the number of special students—only 25 per cent of the enrollment may be in that group. The University of Kentucky is limited as to the number of special students that may be admitted to its college of law.

Educational attainments.—Thirty-three institutions state in effect that the applicants must give evidence of ability to do the work desired. The following institutions require a certain amount of education. The University of Tennessee and the Agricultural and Mechanical College of Texas require the equivalent of a high-school education. The University of Wisconsin, beginning September, 1928, requires at least three years of high-school work. Massachusetts Agricultural College reports that applicants "must show merit in entrance examinations taken." The University of Arkansas accepts no special students; it gives intelligence tests to applicants and either admits them as regular students or denies them admission. North Carolina State College and Pennsylvania State College report that they have no regulation concerning special students.

[1] *Definition of certain terms used in this report on students—Special students.*—A special student is one who has not satisfied in full the requirements for admission to the freshman class, or a graduate student enrolled in an undergraduate college for special work none of which may be used to satisfy the requirements for another degree.

Full-time students.—A full-time student is an undergraduate student carrying at least 12 hours of work or a graduate student who is devoting full time to his or her work.

Part-time students.—A part-time student is an undergraduate student carrying less than 12 hours or a graduate student giving only part time to his or her work.

Graduate students.—A graduate student is one who has received a bachelor's degree from an accredited college, or a student who has finished his or her work for this degree.

Change from special to regular status.—Practically every institution that admits special students allows them to attain regular status when they meet certain conditions. The plans most favored are (1) by examination in high-school subjects; (2) by transfer of college work to make up deficiencies. Thirty-three institutions allow special students to remove deficiencies by examination and nine do not. Four do not extend this privilege after the first year; 6 allow removal of deficiency by examinations after the first year; 2 after the second year; and 19 institutions after the third year. The University of Arizona will allow examinations at any time. Washington State College allows entrance examinations to be taken either in the institution or in the high school. Three institutions report that they allow examinations only in courses in which no advanced work has been taken. One institution has no regulation governing the question.

In transferring college credit to make up entrance deficiencies, the rate of transfer varies in the different institutions from 2 semester hours for each unit to 12 quarter hours or 8 semester hours for each unit. Ohio State University requires three quarters work, or 45 quarter hours, to make up entrance deficiencies. The University of Minnesota gives a college ability test (test for proficiency in English).

The State College of Washington will waive requirements with regard to making up entrance deficiencies in the case of students 30 years of age or over who have completed at least 64 hours in residence in some one curriculum of the college with an average grade of "B," including at least 16 hours in courses numbered above 100; such students may be accepted as candidates for degrees. Applications must be passed upon by the committee on admissions.

The University of Kentucky will waive entrance requirements for persons who have completed four years' work in the standing required for graduation with honors. (Approximately 5 per cent of the class attains honors.)

The University of New Hampshire will waive entrance requirements for students of mature age who have a satisfactory college record.

If a student has completed one year of successful work in college Purdue University will accept as college preparation any high-school credits the student may have. The balance may be made up by entrance examinations and by counting as college preparation extra college subjects at the rate of six college semester hours for one high-school unit. A maximum of five units of vocational credit may be granted on the basis of experience. Occasionally for a good student the faculty will waive entrance requirements.

The University of Nevada reports the following regulations: "A special student who has successfully carried the regular prescribed work of his college during four semesters and who has made a grade of 2.5 or better in 50 per cent of his work and has no unremoved conditions or failures will be allowed to matriculate as a regular sophomore student. If he has made a grade of 2.5 or better in 90 per cent of his work and has no unremoved conditions or failures, he will be allowed to matriculate as a regular junior student." Table 6 shows the number of special students and the number of degrees they received.

TABLE 6.—*Number of special students admitted on the dates indicated and the number of these same students who later received their degrees*

Date	Number admitted—			Number granted degrees later—		
	Men	Women	Total	Men	Women	Total
1	2	3	4	5	6	7
1899–1900	423	404	827	17	12	29
1909–1910	1,184	854	2,038	139	74	213
1919–1920	2,760	1,211	3,971	291	110	401
1927–1928	2,164	933	3,097	1	0	1

Distribution of Students Admitted to the Land-Grant Institutions During the Year Ended June, 1928

Distribution of all students admitted according to classification.—Of the 47,144 students admitted to the institution during the year 1927–28, 14,427 were admitted with advanced standing, or to the graduate school, or as special students or visitors; 5,401 men and 4,129 women were admitted with advanced standing; 2,298 men and 1,019 women were admitted to the graduate school; 754 men and 670 women were admitted as special students; 82 men and 74 women were admitted as visitors. The percentages of students admitted to the various groups were as follows: 69.4 per cent (32,717) freshmen; 20.2 per cent (9,530) with advanced standing; 7.1 per cent (3,317) to the graduate school; 3 per cent (1,424) as special students; and 0.3 per cent (156) as visitors.

Distribution of freshmen according to methods of admission.—During the year 1927–28, 32,717 freshmen were admitted. For 7,865, or 24.1 per cent of these, the reports did not show the method of admission. The remaining 24,852 freshmen were admitted as follows: 73.8 per cent on certificate; 0.8 per cent by examination; and 1.3 per cent by a combination of examination and certificate.

TABLE 7.—*Distribution of students admitted to college status during the academic year 1927–28 by methods of admission and as to classification*

Institution	Methods of admission						As to classification									
	Number admitted on certificate		Number admitted by examination		Number admitted by combination of certificate and examination		Freshmen		Advanced standing		Graduate school		Special students		Visitors	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Alabama Polytechnic Institute	447	27	0	0	5	0	452	27	28	17	0	1	15	3	0	0
Alaska Agricultural College and School of Mines	24	9	0	0	0	0	24	9	3	0	0	0	8	6	3	3
University of Arizona	323	165	0	0	8	3	331	168	128	110	23	18	43	28	9	15
University of Arkansas	308	161	12	2	12	1	332	164	101	108	10	9	0	0	0	0
University of California							1,684	2,067	516	452			58	88	21	1
Colorado Agricultural College	338	128	0	0	0	0	338	128	36	34	8	2	3	1	0	0
Connecticut Agricultural College	87	43	44	18			131	61	2	2	0	0	0	0	0	0
University of Delaware	119	110	0	0	0	0	119	110	5	11	9	0	5	0	0	0
University of Florida	751	0	0	0	5	0	756	0	53	0	46	4	0	5	0	0
Georgia State College of Agriculture	380	47	7	2	5	3	392	52	32	28	45	40	7	2	0	0
University of Hawaii	168	71	0	0	0	0	168	71	14	16	16	18	0	0		
University of Idaho	363	175	1	0	0	0	364	175	70	73	18	3	7	0	0	0
Purdue University	992	178	0	0	98	39	1,090	217	89	13	27	3	20	23	6	5
Iowa State College	856	334	0	0	5	3	861	337	217	244	118	57	0	0	0	0
Kansas State Agricultural College	589	303	0	0	0	0	589	303	88	99	39	30	17	15	0	0
University of Kentucky	467	208	0	0	6	0	473	208	117	95	72	37	92	32	4	7
Louisiana State University							520	176	729	335	61	27	23	30	0	0
University of Maine	315	91	0	0	11	0	326	91	19	11	11	11	10	5	0	0
University of Maryland	287	74	0	0	0	0	287	74	29	19	27	3	3	4	0	0
Massachusetts Agricultural College							143	43	11	2	38	17	3	0	0	0
Massachusetts Institute of Technology	422	0	142	3	0	0	564	3	187	5	131	0	2	19	0	0
University of Minnesota	1,431	1,086					1,431	1,086	618	289	261	92	106	137	0	0
Mississippi Agricultural and Mechanical College	546	0	0	0	7	0	553	0	44	0	7	0	5	2	0	0
University of Missouri	675	231	0	0	1	0	676	231	316	280	47	33	22	34	0	0
Montana State College	215	105	0	0	0	0	215	105	13	11	4	4	0	0	0	2

TABLE 7.—*Distribution of students admitted to college status during the academic year 1927–28 by methods of admission and as to classification*—Continued

Institution	Methods of admission						As to classification									
	Number admitted on certificate		Number admitted by examination		Number admitted by combination of certificate and examination		Freshmen		Advanced standing		Graduate school		Special students		Visitors	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
University of Nebraska							1,091	1,150	320	371	74	61	41	84	0	0
University of Nevada	170	118	0	0	0	0	170	118	12	12	6	8	3	6	0	0
University of New Hampshire	379	140	0	0	0	0	379	140	15	9	24	9	11	28	0	0
Rutgers University	483	311	6	0	0	45	489	356	21	23	53	6	9	0	0	0
North Carolina State College	448	3	0	0	4	0	452	3	63	1	27	2	28	3	0	0
North Dakota Agricultural College	321	139	0	0	0	0	321	139	47	34	2	0	1	1	0	0
Oregon Agricultural College	865	394	0	0	12	11	877	405	79	102	42	21	39	7	0	0
Pennsylvania State College									162	257	103	40				
Rhode Island State College							150	39	1	0	4	0	0	0	0	0
Clemson Agricultural College	359	0	4	0	6	0	369	0	16	0	0	0	4	0	0	0
South Dakota State College	238	109	0	0	2	0	240	109	330	188	17	5	21	7	0	0
University of Tennessee							560	242	74	79	20	7	44	26	0	0
Agricultural and Mechanical College of Texas	771	0	0	0	20	0	791	0	66	0	67	0	40	0	0	0
University of Vermont	210	156	0	0	15	6	225	162	13	3	2	3	0	0	0	0
Virginia Agricultural and Mechanical College	408	17	0	0	0	0	408	17	5	0	25	3	5	0	0	0
State College of Washington	664	363	0	0	0	0	664	363	84	103	17	11	7	6	35	25
West Virginia University	618	255	0	0	2	1	620	256	89	119	63	57	19	39	0	0
University of Wisconsin	1,441	754	24	6	60	34	1,525	794	510	541	726	362	10	14	4	16
University of Wyoming	230	138	0	0	0	0	230	138	29	33	8	15	23	15	0	0
Total	17,708	6,443	240	31	284	146	22,380	10,337	5,401	4,129	2,298	1,019	754	670	82	74

Mortality of the Class of 1928

In 38 land-grant institutions 22,600 freshmen were enrolled during the year ending June, 1925. Of these 72 per cent were men and 28 per cent were women.

Students were added to the class of 1928 as follows: 453 members of the class came in prior to 1925; 1,469 were added to the class as sophomores in 1926; 1,742 were added to the junior class in 1927; and 329 were added to the senior class in 1928.

Thirteen thousand two hundred and fifty-eight, or about 59 per cent, left the college in which they were first registered. Of these 9,569 were men and 3,689 were women. They withdrew or left the college as follows: 31 per cent during the freshman year ending June, 1925; 17.1 per cent during the sophomore year; 7.5 per cent during the junior year; and 3.1 per cent during the senior year.

During the freshman year 31.3 per cent of the men and 30.2 per cent of the women left college; during the sophomore year 16.5 per cent of the men left and 18.6 per cent of the women; during the junior year 7.4 per cent of the men left and 7.6 per cent of the women; during the senior year 3.5 per cent of the men left and 2.1 per cent of the women.

Of the students who entered during the year ending June, 1925, 28.5 per cent completed the course in less than four years and were granted degrees in June, 1928. These students constituted 64.3 per cent of the class of 1928.

TABLE 8.—*Mortality of the freshman class enrolled in 38 land-grant institutions for the year ending June, 1925*

Institution	Number enrolled in freshman class		Number left college								Number receiving degrees in 1928		Number of degrees earned in less than 4 years	
			Freshmen		Sophomore		Junior		Senior					
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
University of Arizona	234	189	79	64	58	37	22	12	5	1	70	35	0	0
Colorado Agricultural College	266	121	110	49	46	36	17	12	6	2	50	19		1
Connecticut Agricultural College	165	47	97	14	29	12	1	1			38	25	7	2
University of Delaware	117	92	21	15	22	36	6	5		1	46	34	0	1
University of Florida	485	0	152	0	108	0	71	0	21	0	60	0	0	0
Georgia State College of Agriculture	424	65									112	21	17	5
University of Hawaii	116	45	43	9	21	5	10	3	1	2	37	26	0	2
University of Idaho	424	253	128	68	93	73	58	30	14	3	61	58	3	3
University of Illinois	115	47	35	13	19	9	16	4	45	21	33	10		
Purdue University	921	176	362	56	202	30	47	13	4		229	63	4	3
Iowa State College	675	250	199	58	84	62	41	17	40	8	116	64		
Kansas State Agricultural College	681	334	248	106	136	88	102	42	105	26	90	70	0	2
University of Kentucky	574	222	77	17	40	10	20	6	12	3	86	56	3	5
Louisiana State University	455	159	136	26	72	3	40	2	36	7	47	24	0	11
University of Maine	281	78	88	17	51	14	19	4	10	2	101	39	5	6
University of Maryland	257	46	72	7	37	3	28	0	13	1	86	33	3	2
Massachusetts Agricultural College	153	31	53	7	18	8	1	2	1	1	84	0		
Massachusetts Institute of Technology	570	7									189	1		
Michigan State College	378	171	54	71	79	9	48	9			145	67	10	7
University of Minnesota	1,683	1,003	501	253	224	183	66	82	67	17	183	201	10	12
Mississippi Agricultural and Mechanical College	425	0	140	0	71	0	14	0	20	0	114	0	1	0
Montana State College	218	87	66	28	32	25	26	10	50	4	44	20	1	0
University of Nebraska	784	818	303	380	160	187	72	78	6	3	735	165	13	16
University of Nevada	234	127	82	47	50	17	16	7	0	2	39	42		
University of New Hampshire	369	136	80	21							115	77		
Rutgers University	254	227	45	52	40	16	17	10	0	1	136	146	0	0
North Carolina State College	511	0	182	0	106	0	27	0	6	0	124	0	35	3
North Dakota Agricultural College	189	112	78	51	18	17	17	11	1	0	45	33		

Oregon Agricultural College	697	453	310	156	152	76	68	31	45	20	113	70	9	0
Rhode Island State College	161	23	63	5	48	1	24	1			62	19	1	0
Clemson Agricultural College	435	0	121	0	78	0	23	0	6	0	175	0	0	0
Agricultural and Mechanical College of Texas	886	0	363	0	151	0	13	0	5		298	0	3	0
Agricultural College of Utah	206	121	58	20	51	60	29	22	19	3	44	16	5	1
University of Vermont	228	163	63	28	33	11	30	9	11	2	80	73	0	
Virginia Agricultural and Mechanical College	403	6	87		63	1	51	1	7	1	142	3	2	
State College of Washington	670	357	198	120	127	78	57	15			102	70	2	1
West Virginia University	518	216	172	76	78	27	62	26			82	60		
University of Wyoming	140	146	63	58	16	39	15	14	3	1	16	22	0	5
Total	16,302	6,298	5,097	1,899	2,691	1,173	1,209	482	572	135	4,507	1,669	174	88

Distribution of Students as to Resident and Nonresident Courses, Degree and Nondegree Courses, in Land-Grant Institutions

Total enrollment.—For the year ending June, 1928, there were enrolled 296,676 students.

Resident and nonresident.—In the resident courses, 175,764 students, or 59.2 per cent of the total number of students, were enrolled; in nonresident courses 120,912 students, or 40.8 per cent, were enrolled.

Degree and nondegree courses.—In degree courses, 194,154, or 65.4 per cent of the total number of students, were enrolled; in the nondegree courses, 102,522, or 34.6 per cent, were registered. This includes 32,297 enrolled in short courses of less than one semester.

Enrollment as to sex.—Of the total enrollment 59.5 per cent were men and 40.5 per cent were women. This is based on an enrollment of 259,682 students. There were 36,994 students not classified as to sex. In the degree courses 58.8 per cent were men and 41.2 per cent women; in nondegree courses 61.5 per cent were men and 38.5 per cent women. Of the total number of resident students in degree courses 67.8 per cent were men and 32.2 per cent were women; of the total number of resident students in nondegree courses 58.8 per cent were men and 41.2 per cent women; 64.1 per cent of the enrollment of nonresident students in nondegree courses were men and 35.9 per cent women. Two institutions, the University of California and the University of Wyoming, had a larger number of women in attendance than men. The University of California had 44.3 per cent men and 55.7 per cent women; the University of Wyoming, 49.8 per cent men and 50.2 per cent women. In Table 9 is shown the enrollment in degree courses and nondegree courses for resident and nonresident students.

TABLE 9.—*Enrollment of resident and nonresident students in land-grant institutions, 1927–28*

Institution	Degree courses						Nondegree courses							
	Resident		Nonresident				Resident				Nonresident			
			Class extension		Correspondence		Less than 4 years		Less than 1 semester		Class extension		Correspondence	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Alabama Polytechnic Institute	1,367	123	375	751	9	13	19	0	0	0	0	0	0	0
Alaska Agricultural College and School of Mines	45	24	0	0	0	0	0	0	33	75	0	0	0	0
University of Arizona	1,101	640	62	199	172	376	0	0	0	0	0	0	0	0
University of Arkansas	867	284	336	844	394	644	0	0	0	0	22	0	0	0
University of California	7,115	8,437	1,965	7,805	1,200	1,957	204	228	518	55	2,228	2,173	598	433
Colorado Agricultural College	829	335	0	0	0	0	0	0	0	0	0	0	0	0
Connecticut Agricultural College	302	157	0	0	0	0	46	0	156	228	0	0	0	0
University of Delaware	383	156	0	62	0	0	0	71	51	69	0	0	0	0
University of Florida	2,063	9	221	753	394	749	73	0	582	1,510	21	402	363	658
Georgia State College of Agriculture	1,066	385	[1] 1,193		[1] 393		0	0	1,503	891	0	0	0	0
University of Hawaii	462	367	28	119	0	0	0	0	53	58	244	59	0	0
University of Idaho	1,116	624	0	0	130	215	0	0	65	6	0	0	0	0
University of Illinois	8,715	3,080	62	119	0	0	0	0	[1] 2,786		0	0	0	0
Purdue University	2,922	601	139	66	39	0	0	0	4,795	1,539	[1] 31,873		0	0
Iowa State College	2,443	1,214	0	0	0	0	274	145	3,332	3,424	0	0	0	0
Kansas State Agricultural College	1,784	1,024	0	17	560	697	7	0	0	0	0	0	272	318
University of Kentucky	1,568	877	110	734	158	290	0	0	124	61	31	30	0	0
Louisiana State University	1,362	536	164	481	95	114	28	79	730	400	0	21	2	3
University of Maine	985	287	19	83	19	41	10	0	71	0	0	0	0	0
University of Maryland	909	343	158	34	0	0	4	0	0	0	176	0	0	0
Massachusetts Agricultural College	456	120	0	0	0	0	194	16	67	8	0	0	86	13
Massachusetts Institute of Technology	2,662	50	0	0	0	0	0	0	0	0	0	0	0	0
Michigan State College	1,856	825	27	123	9	12	48	0	0	0	0	0	3	0
University of Minnesota	5,766	3,498	2,429	2,756	953	1,190	34	707	1,184	912	487	351	159	134
Mississippi Agricultural and Mechanical College	1,390	5	0	0	0	0	0	0	0	0	0	0	0	0

[1] Not divided as to sex.

TABLE 9.—*Enrollment of resident and nonresident students in land-grant institutions, 1927–28*—Continued

Institution	Degree courses						Nondegree courses							
	Resident		Nonresident				Resident				Nonresident			
			Class extension		Correspondence		Less than 4 years		Less than 1 semester		Class extension		Correspondence	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
University of Missouri	2,597	1,325	189	593	669	1,199	88	1	0	0	73	10	7	3
Montana State College	329	136	0	0	0	0	0	0	193	102	0	0	0	0
University of Nebraska	2,637	2,668	209	499	329	890	0	0	135	33	57	84	21	27
University of Nevada	505	355	0	0	0	0	0	0	0	0	0	0	0	0
University of New Hampshire	1,157	501	0	0	0	0	22	0	0	0	0	0	0	0
Rutgers University	1,239	1,012	946	1,144	3	0	0	0	327	131	1,634	1,493	2,352	83
Cornell University	4,351	1,320	0	0	0	0	51	30	0	0	2,203	196	2,774	217
North Carolina State College	1,363	10	123	229	107	82	93	0	525	627	158	2,344	275	0
North Dakota State College	699	345	0	38	17	18	0	0	0	0	0	0	379	51
Ohio State University	5,434	2,443	714	165	0	0	0	0	108	4	0	0	0	0
Oklahoma Agricultural and Mechanical College	1,554	868	0	0	297	691	0	0	381	57	0	0	75	185
Oregon Agricultural College	2,210	1,062	0	0	39	0	22	26	78	83	0	0	0	0
Pennsylvania State College	3,236	499	676	3,937	185	355	123	61	483	18	52	8	878	642
Rhode Island State College	403	124	0	0	0	0	0	0	0	0	0	0	0	0
Clemson Agricultural College	1,123	0	0	0	0	0	3	0	0	0	0	0	0	0
South Dakota State College	586	298	0	0	0	0	222	44	0	0	0	0	0	0
University of Tennessee	2,081	922	172	158	240	233	102	0	0	263	330	24	44	11
Agricultural and Mechanical College of Texas	2,491	0	140	0	0	0	5	0	207	0	0	0	0	0
Agricultural College of Utah	604	433	19	13	172	123	25	100	1,056	1,202	27	21	30	52
University of Vermont	752	617	0	0	0	0	0	0	40	0	0	0	0	0
Virginia Agricultural and Mechanical College	1,101	43	0	0	0	0	50	0	34	0	0	0	0	0
State College of Washington	1,669	1,037	162	233	144	174	42	2	0	0	0	0	13	9
West Virginia University	1,678	788	115	0	0	0	0	0	552	187	1,465	0	0	0
University of Wisconsin	5,522	3,300	554	894	1,053	1,281	63	111	185	0	3,056	1,321	1,746	862
University of Wyoming	557	475	26	115	[1] 749		0	0	0	0	0	0	0	0
Total	95,412	44,582	10,130	22,964	7,387	11,344	1,852	1,621	17,568	11,943	12,264	8,837	10,077	3,701
			[1] 1,193		[1] 1,142				[1] 2,786		[1] 31,873			

[1] Not divided as to sex.

TABLE 10.—*Enrollment of full-time students in degree courses by semesters or terms, including the summer session for 1927–28*

Institution	First semester or term		Second semester or term		Third term		Average enrollment during the year		Summer session			
									First term		Second term	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	2	3	4	5	6	7	8	9	10	11	12	13
Alabama Polytechnic Institute	1,413	121	1,311	123			1,362	122	332	389	332	134
Alaska Agricultural College and School of Mines	40	15	41	15			41	15				
University of Arizona	1,097	673	1,039	641			1,068	657	120	155	106	143
University of Arkansas	919	476	847	480			883	478	200	583		
University of California	6,282	7,266	5,937	6,950			6,110	7,108	927	1,143	2,281	6,254
Colorado Agricultural College	771	282	847	315			809	299	212	263	24	76
Connecticut Agricultural College	354	156	248	150			301	153				
University of Delaware	396	240	358	230			377	235	27	267		
University of Florida	1,971	5	2,155	12			2,063	9	405	823		
Georgia State College of Agriculture	1,066	387					1,066	387	294	192		
University of Hawaii	423	195	388	190			406	193	45	167		
University of Idaho	1,105	601	1,036	574			1,071	588	100	187		
University of Illinois	8,589	3,010	7,611	2,744			8,100	2,877	684	681		
Purdue University	2,907	582	2,662	545			2,784	564	454	123		
Iowa State College	2,456	1,196	2,335	1,147	2,048	1,097	2,280	1,147	645	597	337	292
Kansas State Agricultural College	1,830	1,042	1,738	1,007			1,189	690	367	569	27	2
University of Kentucky	1,549	725	1,470	779			1,510	752	549	602	343	255
Louisiana State University	1,316	507	1,370	531	1,401	569	1,362	536	334	483	194	214
University of Maine	1,011	284	936	273			974	279	152	182		
University of Maryland	853	240	809	226			831	233	178	394		
Massachusetts Agricultural College	456	123	439	118	419	111	438	117	53	96		
Massachusetts Institute of Technology							2,662	50				
Michigan State College	1,991	809	1,819	776	1,651	755	1,820	780	[1] 519			
University of Minnesota	5,622	2,930	5,182	2,832	5,095	2,646	5,300	2,803	2,168	2,665	1,124	972
Mississippi Agricultural and Mechanical College	1,354	0	1,387	0			1,371	0				
University of Missouri	2,463	1,179	2,268	1,150			2,366	1,165	666	767		
Montana State College	640	251	635	236	580	230	618	239				
University of Nebraska	3,627	2,563	3,449	2,531			3,538	2,547	718	2,154	395	901
University of Nevada	498	317	470	321			484	319	13	117		
University of New Hampshire	1,146	473					1,146	473	146	142		

[1] Not divided as to sex.

TABLE 10.—*Enrollment of full-time students in degree courses by semesters or terms, including the summer session for 1927–28*—Continued

Institution	First semester or term		Second semester or term		Third term		Average enrollment during the year		Summer session			
									First term		Second term	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	2	3	4	5	6	7	8	9	10	11	12	13
Rutgers University	1,219	1,023	1,149	989			1,184	1,006	464	879		
Cornell University	4,357	1,312					4,357	1,312	978	1,075		
North Carolina State College	1,435	10	1,339	9	1,309	11	1,361	10	191	85		
North Dakota Agricultural College	731	332	723	335	608	325	687	331	47	133		
Ohio State University	6,326	2,595	5,994	2,447	5,482	2,283	5,934	2,442	1,170	1,082		
Oklahoma Agricultural and Mechanical College	1,574	883	1,423	837			1,499	860	342	875		
Oregon Agricultural College	2,263	1,089	2,240	1,031	1,966	984	2,156	1,035	241	396		
Pennsylvania State College	3,141	481					3,141	481				
Rhode Island State College	396	117					396	117				
Clemson Agricultural College	1,115	0	1,114	0			1,115	0	107	50		
South Dakota State College	561	302	537	282	503	276	534	287	59	109		
University of Tennessee	2,001	856			2,133	1,003	2,067	930	328	855	201	261
Agricultural and Mechanical College of Texas	2,439	0	2,543	0			2,491	0	585	0		
Agricultural College of Utah	523	424	645	437	479	418	549	426	230	213	106	127
University of Vermont	746	477					746	477	122	751		
Virginia Agricultural and Mechanical College	1,181	35	1,126	35	981	35	1,096	35	112	31	141	9
State College of Washington	1,669	1,044	1,576	950			1,623	997	134	200		
West Virginia University	1,720	784	1,624	749			1,672	767	532	623	324	289
University of Wisconsin	5,522	3,181	5,058	3,061			5,290	3,121	2,048	3,117		
University of Wyoming	551	422	521	400	469	388	514	403	161	611	128	468

Distribution of Graduate Students by Institutions from Which They Received Their Last Degree

Of the 9,292 graduate students enrolled in land-grant institutions for 1927–28, 4,706 or 50.6 per cent were enrolled in institutions in their home States; 1,128 or 12.1 per cent, from other institutions within the State; 3,148, or 33.9 per cent, from institutions in other States; 310, or 3.3 per cent, from institutions in foreign countries.

Institutions having the largest enrollment of graduate students from foreign countries, as shown in Table 11, are as follows: Cornell University, 92; University of California, 89; University of Minnesota, 65; University of Wisconsin, 41. These four schools had 92 per cent of the enrollment of graduate students from foreign countries.

TABLE 11.—*Distribution of students admitted to graduate work in land-grant institutions (1927–28) according to institutions from which they received their last degree (bachelor's or master's only)*

Institution	Number with degree from—												Total		Per cent of total enrollment from own institution	
	Own institution		Institutions within the State				Institutions in other States				Institutions in foreign countries					
			Public		Private		Public		Private							
	Bachelor's	Master's	Bachelor's	Master's	Bachelor's	Master's	Bachelor's	Master's	Bachelor's	Master's	Bachelor's	Master's	Bachelor's	Master's	Bachelor's	Master's
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Alabama Polytechnic Institute	12	0	0	0	0	0	3	2	3	2	0	0	18	4	66.6	0
Alaska Agricultural College and School of Mines	1	0	0	0	0	0	0	0	0	0	0	0	1	0	100.0	0
University of Arizona	39	6	1	0	0	0	63	1	0	0	0	0	103	7	37.8	85.7
University of Arkansas	12	0	1	0	1	0	4	1	0	0	0	0	18	1	67.7	0
University of California	1,212	182	5	0	122	17	357	125	245	43	78	11	2,019	378	60.0	48.1
Colorado Agricultural College	20	0	0	0	0	0	13	0	2	0	0	0	35	0	57.1	0
Connecticut Agricultural College	1	0	0	0	0	0	0	0	0	0	0	0	1	0	100.0	0
University of Delaware	6	0	0	0	0	0	1	0	2	0	0	0	9	0	66.7	0
University of Florida	36	0	2	0	0	0	4	0	4	0	0	0	46	0	78.3	0
Georgia State College of Agriculture	46	0	17	0	11	0	6	0	5	0	0	0	85	0	54.1	0
University of Hawaii	15	0	0	0	0	0	9	0	10	0	0	0	34	0	44.1	0
University of Idaho	28	0	0	0	2	0	18	3	5	0	0	0	53	3	52.8	0
Purdue University	37	0	2	0	3	0	6	2	12	5	0	0	60	7	61.6	0
Iowa State College	51	1	4	0	18	0	55	6	27	4	9	0	164	11	31.1	9.1
Kansas State Agricultural College	28	0	3	0	7	0	21	2	6	2	0	0	65	4	43.1	0
University of Kentucky	49	0	14	0	17	0	11	1	17	0	0	0	108	1	45.4	0
Louisiana State University	52	5	8	0	3	0	11	0	8	0	1	0	83	5	62.7	100.0
University of Maine	11	1	0	0	3	1	2	1	6	2	0	0	22	5	50.0	20.0
University of Maryland	10	0	0	0	3	0	15	1	11	1	0	0	39	2	25.6	0
Massachusetts Agricultural College	20	0	11	0	0	0	20	4	0	0	0	0	51	4	39.2	0
Michigan State College	56	0	7	0	1	0	17	10	6	0	0	0	87	10	64.4	0
University of Minnesota	437	160	0	0	87	1	109	75	105	48	38	27	776	311	56.3	51.4
University of Missouri	159	49	56	0	27	0	27	7	20	4	4	0	293	60	54.5	81.7

Montana State College							8	0	0	0	0	0	8	0	
University of Nebraska	400	94	27	0	146	6	53	16	93	14	3	1	722	131	55.4	71.8
University of Nevada	23	0	0	0	0	0	2	0	29	0	0	0	54	0	42.6	0
University of New Hampshire	31	1	0	0	0	1	12	0	13	2	1	0	57	4	54.3	25.0
Rutgers University	20	0	0	0	0	0	24	2	8	2	2	0	54	4	37.0	0
Cornell University	256	71	5	2	49	9	168	43	179	25	82	10	739	160	34.6	44.4
North Carolina State College	30	13	2	0	6	1	17	0	12	1	0	0	67	15	44.8	86.7
North Dakota Agricultural College	17	0	0	0	0	0	1	1	1	0	0	0	19	1	89.5	0
Ohio State University	93	9	31	0	215	4	26	19	75	25	0	0	440	57	21.1	15.8
Oregon Agricultural College	38	0	4	0	0	0	18	3	0	0	0	0	60	3	63.0	0
Pennsylvania State College	68	0	0	0	35	0	13	2	25	5	0	0	141	7	48.2	0
Rhode Island State College	1	0	0	0	0	0	2	0	1	0	0	0	4	0	25.0	0
South Dakota State College	10	1	0	0	0	0	5	6	0	0	0	0	15	7	66.7	14.3
University of Tennessee	36	0	2	0	16	0	12	0	9	0	0	0	75	0	48.0	0
Agricultural and Mechanical College of Texas	26	5	5	1	3	0	26	0	1	0	0	0	61	6	42.6	83.3
Agricultural College of Utah	32	0	1	0	3	0	5	0	1	0	0	0	42	0	76.2	0
University of Vermont	5	0	1	0	0	0	6	0	0	0	0	0	12	0	41.7	0
Virginia Agricultural and Mechanical College	17	0	0	0	3	0	6	0	1	0	1	0	28	0	60.7	0
State College of Washington	57	0	2	0	1	0	12	0	12	0	1	0	85	0	67.1	0
West Virginia University	40	0	11	0	36	0	4	0	29	0	0	0	120	0	33.3	0
University of Wisconsin	304	253	4	1	38	2	118	104	158	65	28	13	650	438	46.8	57.8
University of Wyoming	13	0	0	0	0	0	6	0	4	0	0	0	23	0	56.5	0
Total	3,855	851	226	4	856	42	1,316	437	1,145	250	248	62	7,646	1,646	50.4	51.7

TABLE 12.—*Enrollment of members of the faculty for graduate work in their own institution, 1927–28*

Rank	Number institutions reporting	Number enrolled for graduate work	
		Men	Women
1	2	3	4
Instructor	44	943	215
Assistant professor	33	179	29
Associate professor	23	70	7
Professor	17	40	4
Total		1,232	255

Fifteen institutions reported that they barred professors, associate professors, and assistant professors from doing any graduate work in their own institution.

Residence Requirements for Degrees

Thirty-three institutions require at least one year's residence for the bachelor's degree; 11 institutions require more than one year; 1 institution requires less than one year; 13 institutions will count extension as a partial fulfillment of residence requirements. Forty-two institutions require at least a year's residence for the master's degree; 1 requires more than a year; 4 will require at least one year's residence for the doctor's degree; 13 require more than one year's residence.

Thesis Requirements

Eight institutions require a thesis for the bachelor's degree and 46 require a thesis for the master's degree. Thirty-four institutions do not require a thesis for the bachelor's degree; two do not require a thesis for the master's degree.

Avoiding Duplication of Courses

Of the 47 institutions reporting, 33 made definite provisions for efforts to avoid duplication of courses between the different colleges and departments. Thirty-one of these institutions had standing committees for this purpose and two had special committees to report from time to time any possible duplication in undergraduate courses. One institution reported that its committee on duplication of courses keeps a course book showing the name, number, descriptive title, and content of every course authorized, with the date of its authorization. A record is kept of any change in the number or content of the course. Fourteen institutions reported that they had no definite provision for avoiding duplication.

Honors Courses

Sixty-three honors courses were offered in 1927–28 by 11 land-grant institutions—University of Kentucky, Connecticut Agricultural College, University of Illinois, University of California, University of Vermont, Ohio State University, University of Wisconsin, Rutgers University, University of New Hampshire, University of Minnesota, and Massachusetts Institute of Technology. More honors courses are offered in modern language than in any other subjects, which include psychology, biography, home economics, hygiene, philosophy, ancient languages, journalism, sociology, education, and engineering.

Time and Method of Conferring Degrees

The practices of the land-grant institutions with regard to the time and method of conferring degrees vary considerably. Of the institutions reporting, 16 confer degrees only once a year. Thirty-five confer them more than once a year; five of these confer them not only at the regular times for conferring degrees, but also at other times. Twenty institutions confer degrees twice a year; 9, three times a year; 4, four times a year; and 2, five times a year. The institutions that confer degrees only once a year award them formally each time, but not all the institutions that confer degrees oftener than once a year do it formally each time. Of the 20 institutions conferring degrees twice a year, 12 award them formally each time; of the 9 conferring degrees three times a year, only 2 do it formally each time. Two of the four institutions conferring degrees four times a year confer them formally each time; and two of those awarding them five times a year do likewise.

In 48 institutions the graduates are members of the same class regardless of the time of year they receive degrees, and in three they are not. Forty-one institutions determine class membership on the basis of the academic year and nine on the calendar year.

The governing board meets each time and authorizes the granting of degrees in 34 institutions. In 17 institutions this power has been delegated by the board to an executive committee, and administrative council, a committee of the senate, the president of the institution, or the secretary of the board.

Summary of Degrees

From the year 1863 to 1928 the land-grant institutions granted 403,531 degrees; 315,543, or 78.2 per cent, were bachelor's degrees; 42,989, or 10.6 per cent, were master's; 4,769, or 1.2 per cent, were doctor's; 38,392, or 9.5 per cent, were in law, medicine, dentistry, and pharmacy; and 838, or 0.5 per cent, were honorary.

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Of the 403,531 degrees granted, 310,865, or 77 per cent, were conferred on men and 92,666, or 23 per cent, on women. Of the 315,543 bachelor's degrees 232,657, or 57.7 per cent, were conferred on men and 82,886, or 20.5 per cent, on women. Of the 42,989 master's degrees 34,944, or 8.6 per cent, were conferred on men, and 8,045, or 2 per cent, on women. Of the 4,769 doctor's degrees, 4,240, or 1.1 per cent, were conferred on men, and 529, or 0.1 per cent, on women. Of the 38,392 first degrees in law, medicine, dentistry, and pharmacy, 37,261, or 9.2 per cent, were conferred on men and 1,131, or 0.3 per cent, on women. (See Tables 13 and 14.)

TABLE 13.—*Degrees by name granted to men and women from 1863 to 1928*

Degree	Men	Women	Total	Per cent
1	2	3	4	5
Bachelor of arts	44,819	40,172	84,991	21.1
Bachelor of science	79,216	15,986	95,202	23.5
Bachelor of agriculture	14,990	324	15,314	3.8
Bachelor of education	3,386	9,616	13,002	3.2
Bachelor of home economics		7,091	7,091	1.8
Bachelor of engineering	47,979	145	48,124	11.9
Veterinary medicine	2,459	2	2,461	.6
Business and commerce	3,723	624	4,347	1.1
Other bachelors' degrees	36,085	8,926	45,011	11.2
Total	232,657	82,886	315,543	78.2
First degrees:				
In medicine	13,932	733	14,665	3.6
In dentistry	5,514	117	5,631	1.4
In law	15,389	126	15,515	3.9
In pharmacy	2,426	155	2,581	.6
Total	37,261	1,131	38,392	9.5
Master of arts	9,302	6,053	15,355	3.8
Master of science	11,915	1,346	13,261	3.3
Master of agriculture	1,045	22	1,067	.3
Master of education	99	42	141	
Master of home economics	10	15	25	
Master of engineering	5,008	11	5,019	1.2
Other masters' degrees	7,565	556	8,121	2.0
Total	34,944	8,045	42,989	10.6
Doctor of philosophy	4,116	529	4,645	1.2
Doctor of science	124		124	
Total	4,240	529	4,769	1.2
Honorary degrees:				
Doctor of laws	738	46	784	.2
Doctor of divinity	260		260	.1
Others	765	29	794	.2
Total	1,763	75	1,838	.5
Grand total	310,865	92,666	403,531	100.0

TABLE 14.—*Number of first degrees and honorary degrees conferred by land-grant institutions from 1863 to 1928, by years. (For graduate degrees see section on graduate students, Part XX)*

Year	First degree						Honorary degrees		
	To undergraduates		In law	In medicine	In dentistry	In pharmacy	D. D.	LL. D.	Others
	Men	Women							
1	2	3	4	5	6	7	8	9	10
1863	44			29			3		
1864	33			29			5		4
1865	39	5		33			3	1	2
1866	47	6		36			6	5	6
1867	53	12		24			7		13
1868	77			20			4	1	6
1869	92	12	11	24			4	5	7
1870	135	2	9	16			7	3	3
1871	222	10	20	17			5	1	2
1872	292	10	29	19			4	4	5
1873	343	8	31	24			7	1	3
1874	341	28	34	24			7	5	3
1875	350	32	37	37			2	4	3
1876	445	59	33	35			5	3	1
1877	365	44	25	38			4	1	7
1878	417	51	38	41			9	5	3
1879	444	71	38	55			7	3	6
1880	423	70	53	93	13		6	1	4
1881	561	71	109	109	21		7	3	8
1882	557	78	90	149	20		6	8	3
1883	542	93	88	235	18		9	9	5
1884	548	71	82	175	17		4	6	9
1885	534	74	76	153	26		5	4	2
1886	589	77	91	120	24		2	10	5
1887	675	55	101	132	12		4	2	6
1888	855	89	108	137	14		4	8	6
1889	883	107	117	153	24		5	5	15
1890	1,102	118	143	164	31		2	8	6
1891	1,134	151	174	113	38		9	8	5
1892	1,327	156	157	200	16		7	11	13
1893	1,550	233	305	212	31		9	6	8
1894	1,591	255	293	89	18		4	15	9
1895	1,901	315	380	146	53		3	3	5
1896	2,176	340	463	92	63		5	9	3
1897	2,119	396	327	150	50	44	1	9	16
1898	2,303	502	359	238	58	39	5	4	8
1899	2,347	581	407	345	74	44	4	9	4
1900	2,706	611	482	398	69	41	2	6	5
1901	2,801	622	551	386	68	63	3	8	2
1902	3,033	717	468	413	111	50	3	15	7
1903	3,285	893	432	506	135	50	4	8	8
1904	3,607	915	437	506	152	62	3	46	12
1905	3,861	955	320	500	182	46	5	14	6
1906	4,098	1,059	375	430	116	68	2	12	8
1907	4,431	1,018	353	390	86	58	2	22	7
1908	4,468	1,166	371	336	110	77	3	17	12
1909	4,893	1,218	366	334	107	90	3	22	13
1910	5,040	1,298	421	305	91	85	3	24	16
1911	5,554	1,528	432	265	121	71	1	12	10
1912	5,908	1,658	415	315	113	78	2	15	18
1913	6,194	1,732	394	328	83	75	2	29	21
1914	6,771	2,028	339	302	147	75	2	17	17
1915	7,338	2,244	380	286	139	96	2	18	7
1916	7,947	2,499	342	362	193	79	4	35	24
1917	8,158	2,708	285	251	215	59	2	10	38
1918	5,331	2,860	149	185	238	54	2	18	18
1919	4,423	3,033	103	216	261	37	1	61	25
1920	8,018	3,226	295	332	133	78	2	30	18
1921	8,947	3,602	272	255	175	97	2	22	13
1922	10,555	4,121	337	309	219	74	3	25	36

TABLE 14.—*Number of first degrees and honorary degrees conferred by land-grant institutions from 1863 to 1928, by years*—Continued

Year	First degree						Honorary degrees		
	To undergraduates		In law	In medicine	In dentistry	In pharmacy	D. D.	LL. D.	Others
	Men	Women							
1	2	3	4	5	6	7	8	9	10
1923	12,385	5,003	411	386	325	135	2	23	32
1924	12,408	5,288	471	415	339	147	2	26	34
1925	12,721	6,066	469	593	253	180	2	11	35
1926	13,313	6,602	455	527	254	233	1	11	42
1927	12,931	7,143	566	542	307	54	2	28	43
1928	14,076	6,891	596	586	268	142	3	19	53
Total	232,657	82,886	15,515	14,665	5,631	2,581	260	784	794

A Comparative Study of the Scholastic Standing of Four Groups of Students in English and Science by Major Fields of Interest

The lowest average scholastic standing in English of four groups of students in the major fields of interest was in the agricultural group in 19 institutions; in the engineering group in 8 institutions; in arts and science group in 6 institutions; and in the home economics group in 5 institutions.

In science the agricultural group made the lowest standing in 11 institutions; the engineering group in 8 institutions; arts and sciences in 6; and home economics in 5.

The groups making the highest average in English were home economics, the highest standing in 13 institutions; arts and sciences in 12; engineering in 4; and agriculture in 2.

In science, the agricultural group made the highest average in 8 institutions; engineering in 9 institutions; arts and sciences in 9 institutions; and home economics in 1.

Combining the groups making the lowest average in English and science, 30 agricultural groups made the lowest average, 14 engineering groups; 13 arts and sciences; and 7 home economics.

In arts and science groups, 21 made the highest average; engineering 13, agriculture 10, and home economics 14. (See Table 15.)

A Comparative Study of the Average Intelligence Scores of Students by Major Fields of Interest

The same groups ranked in their intelligence tests as follows: Agriculture group made the lowest average in 13 institutions; engineering in 3 institutions; home economics in 9; arts and sciences

in 2. Agriculture group ranked highest in 1 institution; engineering in 15 institutions; home economics in 1; arts and sciences in 14. In 30 institutions reporting where graduates and undergraduates were enrolled in the same classes they held graduates to a higher standard in order to "pass."

TABLE 15.—*A comparative study of the scholastic standing of four groups of students in English and science by major fields of interest in 43 land-grant institutions*

Institution	Average grade in English				Average grade in science			
	Agriculture	Engineering	Home economics	Arts and sciences	Agriculture	Engineering	Home economics	Arts and sciences
1	2	3	4	5	6	7	8	9
Alabama Polytechnic Institute	65	72	80	66	63	70	70	67
Alaska Agricultural College and School of Mines	0	79	90	65	0	86	0	0
University of Arizona	3.3	3.33	3.10	3.25	3.2	3.46	2.95	3.39
University of Arkansas	0.6	1.28	1.1	2.05	1.58	1.29	.96	2.6
University of California	C−15	C−37	----------	B−76	B−46	C−03	----------	B−45
Colorado Agricultural College	75	77	78	79	80	86	81	85
Connecticut Agricultural College	61	59	47	39	56	0	55	47
University of Delaware	0	0	D+	C+	0	0	D+	C−
University of Florida	83	77	----------	79	----------	----------	----------	----------
Georgia State College of Agriculture	76	78	85	81	72	71	70	71
University of Hawaii	64	66	70	72	69	64	72	74
University of Idaho	3.8	3.7	4.8	4.5	3.4	3.7	3.3	3.5
University of Illinois	2.98	3.1	----------	3.3	2.7	3.1	----------	3.0
Purdue University	2.8	3.5	3.7	3.5	3.4	3.8	3.4	3.2
Kansas State Agricultural College	.609	.653	1.139	1.032	.683	.153	.727	.705
University of Kentucky	1.6	1.8	1.8	1.9	----------	----------	----------	----------
Louisiana State University	76	77	82	82	75	73	78	82
University of Maine	1.8	1.1	2.1	1.8	1.9	2.2	1.6	2.0
University of Maryland	1.3	1.9	2.4	1.86	1.6	2.2	2.39	2.4
Massachusetts Agricultural College	72	0	0	0	73	----------	----------	----------
Michigan State College	C	C	C	C	D	C	D	D
University of Minnesota	----------	D+	----------	C−	----------	D+	----------	C−
Mississippi Agricultural and Mechanical College	69	74	----------	76	69	----------	----------	77
University of Missouri	169.2	207.4	152	172.3	----------	----------	----------	----------
Montana State College	74	76	76	79	74	79	76.3	82
University of Nebraska	67	76	75	82	75	0	77	77
University of Nevada	3.5	3.0	3.5	2.3	2.2	2.9	2.8	3.2
University of New Hampshire	66.7	66.1	0	70	64	66	0	70
Rutgers University	2.9	3.1	3.0	2.8	3.7	2.8	3.2	2.6
Cornell University	63.4	0	73	67	67.4	72	69	77

TABLE 15.—*A comparative study of the scholastic standing of four groups of students in English and science by major fields of interest in 43 land-grant institutions*—Continued

Institution	Average grade in English				Average grade in science			
	Agriculture	Engineering	Home economics	Arts and sciences	Agriculture	Engineering	Home economics	Arts and sciences
1	2	3	4	5	6	7	8	9
North Carolina State College	71+	75	0	71+	85+	71+	0	85+
North Dakota Agricultural College	74	74	77	77	73	75	72	75
Oklahoma Agricultural and Mechanical College	C	C−	C	D+	C	D	D	D
Oregon Agricultural College	76	77	81	75	73	79	79	0
Rhode Island State College	71	67	77	73	72	74	73	52
Clemson Agricultural College	D	D	0	0	D	D	0	0
Agricultural and Mechanical College of Texas	74	79	0	80	65	7.5	0	63
Agricultural College of Utah	81	78	85	80	88	65	75	78
University of Vermont	75	74	74	75	0	56	0	61
Virginia Agricultural and Mechanical College	60	66	0	64	77	71	0	71
State College of Washington	77+	78+	83+	80+	78+	77+	80+	84+
West Virginia University	71	72	68	77	65	74	65	73
University of Wyoming	3.3	3.3	0	3.1	4.5	4.3	0	3.5

Three institutions—Georgia State College of Agriculture, Ohio State University, and Oklahoma Agricultural College—offer bachelor's degrees in all seven of the major fields of interest. One institution, Ohio State University, offers the master's and doctor's degrees in all seven of the major fields.

Twenty-two institutions offer the bachelor's degree in six of the major fields of interest. Eight institutions offer the master's and three institutions offer the doctor's degree in six major fields of interest.

One institution, Massachusetts Institute of Technology, offers the bachelor's degree in only two major fields. Two institutions, Massachusetts Institute of Technology and Rutgers University, offer the master's degree in two major fields. Three institutions—Iowa State College, Massachusetts Institute of Technology, and the State College of Washington—offer the doctor's degree in only two major fields.

Two institutions offer the master's degree in just one of the major fields. These institutions are Colorado Agricultural College and Kansas Agricultural College.

Twenty-three institutions offer the bachelor's, nine offer the master's, and five offer the doctor's degrees in courses other than the seven major fields.

TABLE 16.—*Number of land-grant institutions that offer the bachelor's, master's, and doctor's degrees in the major fields of interest*

Field	Bachelor's	Master's	Doctor's
1	2	3	4
Agriculture	49	46	15
Home economics	44	31	10
Engineering	48	40	9
Teacher training	37	28	9
Commerce	33	20	10
Veterinary science	12	6	2
Arts and sciences	46	42	15

TABLE 17.—*Enrollment and per cent of graduate and undergraduate students for certain years by major fields of interest in land-grant institutions*

Field	Undergraduate								Per cent of increase	Graduate								Per cent of increase
	1920		1923		1926		1928		1920 to 1928	1920		1923		1926		1928		1920 to 1928
	Enrollment	Per cent	Enrollment	Per cent	Enrollment	Per cent	Enrollment	Per cent		Enrollment	Per cent	Enrollment	Per cent	Enrollment	Per cent	Enrollment	Per cent	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Agriculture	13,697	15.6	13,588	12.0	11,171	8.3	11,347	8.7	[1] 17.1	577	16.8	1,147	19.0	1,339	15.8	1,480	15.1	156.4
Engineering	20,408	23.2	24,792	21.9	26,893	20.1	29,530	20.1	44.7	227	6.6	543	9.0	619	7.3	704	7.2	210.1
Home economics	5,220	5.9	5,828	5.1	7,256	5.4	7,733	5.2	48.1	34	1.0	141	2.3	247	2.9	290	3.0	752.9
Teacher training	2,257	2.6	7,929	7.0	13,818	10.3	15,268	10.4	576.4	80	2.3	432	7.1	716	8.4	1,164	11.9	1,355
Arts and sciences	30,069	34.2	40,840	36.1	51,368	38.4	57,060	38.8	89.7	2,146	62.4	2,907	48.2	4,282	50.5	4,959	50.8	131
Commerce and business	6,422	7.3	9,328	8.2	11,984	8.9	11,539	7.8	79.6	24	.7	195	3.2	250	2.9	269	2.7	1,020.8
Veterinary medicine	653	.7	516	.4	471	.3	633	.4	[1] 3.0	13	.3	8	.1	15	.2	22	.2	69.2
Other departments	9,049	10.3	10,238	9.0	10,869	8.1	13,899	9.4	53.5	334	9.7	655	10.8	1,005	11.8	875	8.9	161.9

[1] Decrease.

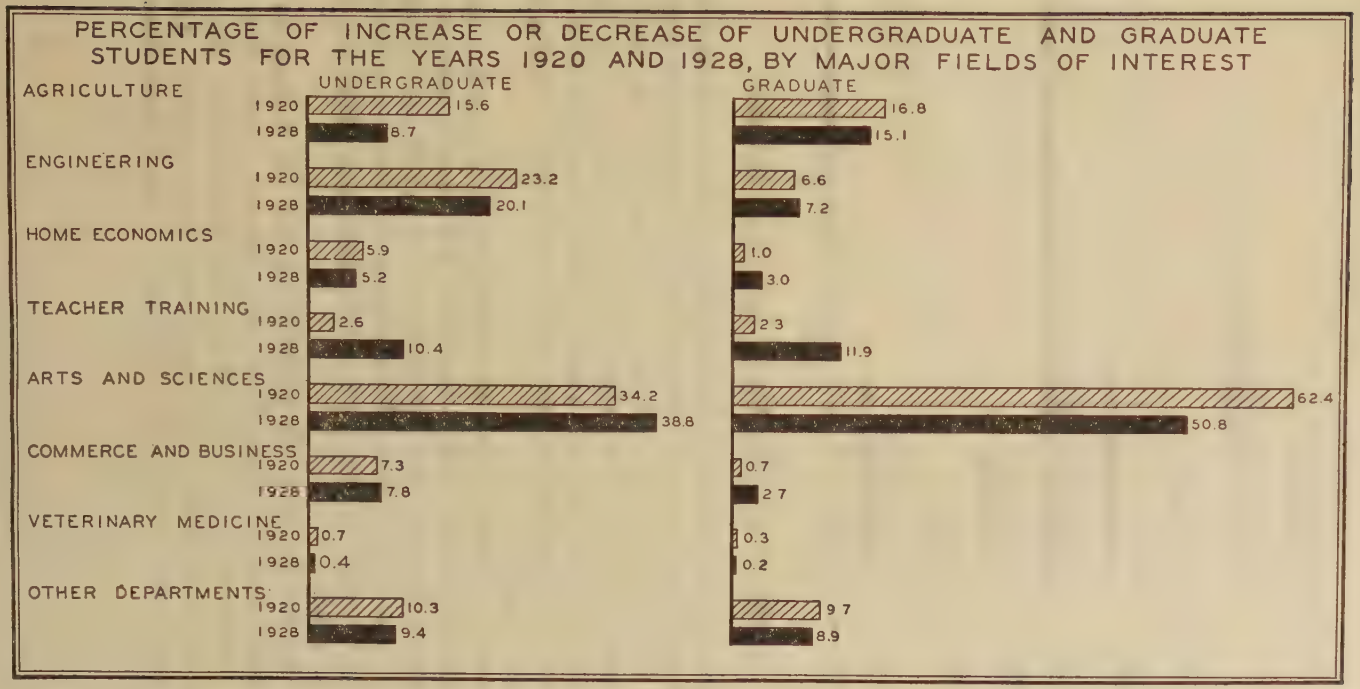
PERCENTAGE OF INCREASE OR DECREASE OF UNDERGRADUATE AND GRADUATE STUDENTS FOR THE YEARS 1920 AND 1928, BY MAJOR FIELDS OF INTEREST
UNDERGRADUATE
GRADUATE
AGRICULTURE
1920 15.6
1928 8.7
16.8
15.1
ENGINEERING
1920 23.2
1928 20.1
6.6
7.2
HOME ECONOMICS
1920 5.9
1928 5.2
1.0
3.0
TEACHER TRAINING
1920 2.6
1928 10.4
2.3
11.9
ARTS AND SCIENCES
1920 34.2
1928 38.8
62.4
50.8
COMMERCE AND BUSINESS
1920 7.3
1928 7.8
0.7
2.7
VETERINARY MEDICINE
1920 0.7
1928 0.4
0.3
0.2
OTHER DEPARTMENTS
1920 10.3
1928 9.4
9.7
8.9

CHART 2

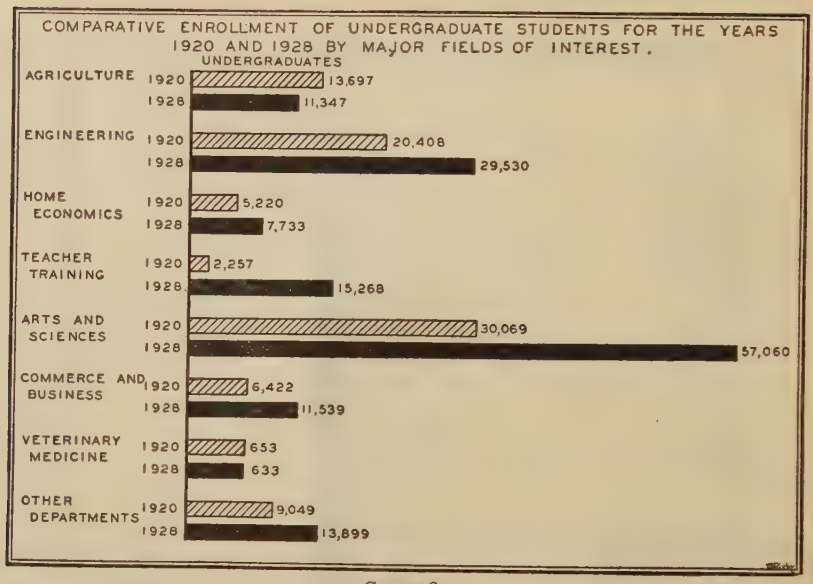

CHART 3

Residence and Migration of Land-Grant Students

Of the 153,494 students attending land-grant institutions in 1927–28, 84.6 per cent are enrolled within their own State and 15.4 per cent attend institutions outside of their own State. Of the 129,782 students attending institutions within their own State, 67.8 per cent are men and 32.2 per cent are women. Seventy-two per cent of the 23,712 students enrolled outside of their own State were men and 28 per cent women.

Twenty-five States in 1927–28 enrolled more nonresident students in their land-grant institutions than left these States to attend land-grant institutions in other States. The five States receiving the greatest number of students from without the State are: Wisconsin, 2,847; Illinois, 2,060; New York, 2,013; Minnesota, 1,902; and Massachusetts, 1,363.

The five States losing the greatest number of students to land-grant institutions in other States are: Illinois, 2,003; New York, 1,444; Pennsylvania, 1,317; California, 1,152; and Iowa, 965.

Four of the Southern States gain more than they lose—Alabama, Louisiana, North Carolina, and Tennessee. (See Tables 18 and 19.)

TABLE 18.—*Residence and migration of land-grant college students, 1927–28*

Institution	Students from within the State			Students from without the State			Number of States and the District of Columbia from which students are enrolled [1]	Number of outlying parts of the United States from which students are enrolled [2]	Number of foreign countries from which students are enrolled	Students residing in the State attending land-grant institutions outside the State [1]				
										Number of students				Total number of institutions
	Men	Women	Total	Men	Women	Total				Men	Women	Not divided as to sex	Total	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Alabama Polytechnic Institute	1,298	123	1,421	184	10	194	19	1	3	96	21	44	161	27
Alaska Agricultural College and School of Mines	31	13	44	10	1	11	7			10	8	0	18	7
University of Arizona			1,200			850	40	2	9	40	19	2	67	19
University of Arkansas			1,480			99	17			161	40	76	277	20
University of California	5,063	4,709	9,772	770	530	1,300	51	1	40	653	209	290	1,152	34
Colorado Agricultural College	764	298	1,062	81	17	98	23		8	208	126	69	403	27
Connecticut Agricultural College	336	152	488	21	1	22	8		2	296	77	10	383	26
University of Delaware	333	250	583	63	61	124	9			41	4	0	45	14
University of Florida	1,749	11	1,760	64	1	65	23	1	3	130	29	33	192	32
Georgia State College of Agriculture	1,223	366	1,589	36	19	55	17			184	12	21	217	24
University of Hawaii	429	220	649	16	13	29	11	2	5	57	16	5	78	12
University of Idaho	1,048	578	1,626	181	83	264	25	1	3	105	78	16	199	20
University of Illinois	7,763	2,905	10,668	1,595	465	2,060	48	1	24	1,310	626	121	2,057	36
Purdue University	2,372	551	2,923	819	78	897	41	2	10	500	242	114	916	35
Iowa State College	2,714	1,386	4,100	678	298	976	42	1	13	502	374	56	992	31
Kansas State Agricultural College	1,992	1,067	3,059	113	70	183	29	1	3	303	207	45	555	30
University of Kentucky	531	156	687	107	70	177	27		2	158	46	64	268	26
Louisiana State University	1,223	505	1,728	154	35	189	20	1	11	101	37	23	161	22
University of Maine	802	273	1,075	142	13	155	11		3	119	25	3	147	22
University of Maryland	530	178	708	395	69	464	26		3	117	49	6	172	19

[1] Includes also Alaska, Hawaii, and Port Rico.

[2] Outlying parts Canal Zone, Guam, and the Philippine Islands.

TABLE 18.—*Residence and migration of land-grant college students, 1927–28*—Continued

Institution	Students from within the State			Students from without the State			Number of States and the District of Columbia from which students are enrolled	Number of outlying parts of the United States from which students are enrolled	Number of foreign countries from which students are enrolled	Students residing in the State attending land-grant institutions outside the State				
										Number of students				Total number of institutions
	Men	Women	Total	Men	Women	Total				Men	Women	Not divided as to sex	Total	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Massachusetts Agricultural College	452	130	582	56	8	64	20		2					
Massachusetts Institute of Technology	1,322	27	1,349	1,340	23	1,363	48	2	39	590	149	23	762	32
Michigan State College	1,964	812	2,776	164	49	213	38	1	8	307	173	47	527	31
University of Minnesota	6,452	3,878	10,330	1,332	570	1,902	48	1	26	416	210	22	648	30
Mississippi Agricultural and Mechanical College	1,289	0	1,289	62	0	62	11			136	40	111	287	26
University of Missouri	2,221	1,362	3,583	475	220	695	38	1	10	475	267	61	803	30
Montana State College	675	281	956	43	12	55	16		2	174	72	13	259	21
University of Nebraska	3,963	4,322	8,285	572	466	1,038	36	2	11	215	96	43	354	24
University of Nevada	380	353	733	204	65	269	13	1	6	19	9	2	30	8
University of New Hampshire	947	406	1,353	169	55	224	13		2	81	28	5	114	17
Rutgers University	982	877	1,859	289	153	442	28		7	687	110	61	858	35
New Mexico College of Agriculture and Mechanic Arts										61	42	57	160	21
Cornell University	2,561	1,032	3,593	1,799	214	2,013	51	1	36	1,081	289	84	1,454	42
North Carolina State College	1,363	14	1,377	154	0	154	21		5	102	17	33	152	24
North Dakota Agricultural College	676	292	968	149	82	231	11	1	4	185	168	9	362	21
Ohio State University			10,442			780	47	2	15	759	201	43	1,003	35
Oklahoma Agricultural and Mechanical College	1,685	971	2,656	94	22	116	19		2	249	143	76	468	27
Oregon Agricultural College	2,233	1,034	3,267	309	156	465	18	1	4	106	49	9	164	22
Pennsylvania State College	3,227	569	3,796	225	16	241	28		7	914	252	164	1,330	37
University of Porto Rico										66	5	3	74	13
Rhode Island State College	298	117	415	79	14	93	7			54	11	2	67	16
Clemson Agricultural College	1,102	0	1,102	75	0	75	9		1	113	5	8	126	17
South Dakota State College	502	271	773	85	29	114	12		2	322	173	12	507	23

University of Tennessee			2,727			384	29		1	133	39	21	193	29
Agricultural and Mechanical College of Texas	2,466	0	2,466	149	0	149	21		12	291	97	125	513	32
Agricultural College of Utah	617	458	1,075	52	25	77	8		4	113	49	12	174	22
University of Vermont	384	332	716	249	140	389	20		3	47	9	8	64	19
Virginia Agricultural and Mechanical College	1,086	37	1,123	131	1	132	28	1	3	139	30	28	197	26
State College of Washington	1,690	1,074	2,764	167	50	217	25	2	8	219	153	25	397	24
West Virginia University	1,803	1,172	2,975	360	129	489	24	1	4	134	22	103	259	23
University of Wisconsin	4,476	2,358	6,834	1,559	1,288	2,847	49	1	32	374	164	21	559	26
University of Wyoming			996			207	31			123	54	1	178	20
Total	75,695	35,893	[3] 129,782	14,431	5,598	[4] 23,712	1,261	32	398	13,902	5,371	2,230	21,503	1,256

[3] Includes 18,194 students not divided as to sex.

[4] Includes 3,683 students not divided as to sex.

TABLE 19.—*Number of students from each State and the District of Columbia, from outlying parts of the United States and from foreign countries, attending land-grant institutions, 1927–28*

Institution	Students residing in—													
	Alabama		Alaska		Arizona		Arkansas		California		Colorado		Connecticut	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Alabama Polytechnic Institute	1,298	123					1	1	0	1				
Alaska Agricultural College and School of Mines			31	13					1	0	1	0		
University of Arizona	[1] (3)				[1] (1,200)		[1] (7)		[1] (260)		[1] (20)		[1] (1)	
University of Arkansas							[1] (1,480)		[1] (1)					
University of California	4	0	1	0	11	12	3	1	5,063	4,709	22	31	6	3
Colorado Agricultural College									4	1	764	298		
Connecticut Agricultural College													336	152
University of Florida	4	0									1	0	2	0
Georgia State College of Agriculture	5	2											2	0
University of Hawaii									1	3	0	1		
University of Idaho					1	0			14	3	1	0		
University of Illinois	7	3			3	0	25	3	45	6	39	11	16	3
Purdue University	3	1			2	1	1	0	4	1	4	0		
Iowa State College	10	2			3	0	9	7	7	4	14	12		
Kansas State Agricultural College					1	0	2	1	3	0	7	3		
University of Kentucky	1	1					0	2			1	0		
Louisiana State University	3	1					12	1	2	1				
University of Maine													11	1
University of Maryland	1	0							1	0	0	1	3	0
Massachusetts Agricultural College											2	0	9	2
Massachusetts Institute of Technology	7	0			6	0	4	0	35	1	11	2	70	1
Michigan State College	1	0			1	0			4	1	5	0	1	0
University of Minnesota	8	2			3	0	4	1	10	8	13	2	6	0
Mississippi Agricultural and Mechanical College	9	0					14	0						
University of Missouri	2	1			1	0	37	16	5	1	10	11	2	1

Montana State College	1	0							11	2				
University of Nebraska	1	0	1	0	1	1	2	1	10	0	46	32	1	0
University of Nevada									180	59				
University of New Hampshire													18	3
Rutgers University	1	0							1	0	1	1	14	7
Cornell University	13	1	1	0	1	1	11	0	33	13	14	2	70	15
North Carolina State College	4	0											2	0
Ohio State University	1 (4)				1 (2)		1 (4)		1 (12)		1 (5)		1 (7)	
Oklahoma Agricultural and Mechanical College					1	0	12	4	2	0	0	1		
Oregon Agricultural College			2	3	2	1			228	90	2	1		
Pennsylvania State College	0	1	1	0					1	0			4	1
Rhode Island State College													6	4
Clemson Agricultural College	1	0												
University of Tennessee	1 (37)						1 (65)		1 (1)				1 (1)	
Agricultural and Mechanical College of Texas	2	0			2	0	21	0	1	0	3	0		
Agricultural College of Utah					5	0			1	0				
University of Vermont									0	1			42	29
Virginia Agricultural and Mechanical College	2	0							1	0			1	0
State College of Washington			3	5	1	0			41	6				
West Virginia University											0	1	3	0
University of Wisconsin	6	6	1	0	1	3	3	2	7	7	11	14	7	7
University of Wyoming									1 (16)		1 (44)		1 (1)	
Total	1,394 1 (44)	144	41	21	46 1 (1,202)	19	161 1 (1,556)	40	5,716 1 (290)	4,918	972 1 (69)	424	632 1 (10)	229

[1] Not segregated.

TABLE 19.—*Number of students from each State and the District of Columbia, from outlying parts of the United States and from foreign countries, attending land-grant institutions, 1927–28*—Continued

Institution	Students residing in—													
	Delaware		Florida		Georgia		Hawaii		Idaho		Illinois		Indiana	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Alabama Polytechnic Institute			39	4	87	0							1	0
University of Arizona			1 (13)		1 (11)									
University of Arkansas			1 (1)						1 (9)		1 (66)		1 (37)	
University of California											1 (2)		1 (1)	
Colorado Agricultural College	1	0	1	1	3	2	22	13	15	18	22	17	15	9
University of Delaware	333	250							1	2	3	1	0	1
University of Florida			1,749	11	8	1								
Georgia State College of Agriculture			5	4	1,223	366					4	0	5	0
University of Hawaii			0	1			429	220			3	0	1	0
University of Idaho	1	0							1,048	578	6	1	1	0
University of Illinois			9	5	5	4	2	0	5	1	7,763	2,905	303	102
Purdue University			2	0			2	0	1	0	226	36	2,372	551
Iowa State College			3	0	3	1			2	2	115	59	15	14
Kansas State Agricultural College									1	0	3	3	1	2
University of Kentucky			1	5	1	0					19	0	10	2
Louisiana State University			1	0	4	0								
University of Maine											2	0	1	1
University of Maryland	2	1	1	0	1	0					0	1		
Massachusetts Agricultural College	1	0	1	0	1	0					4	0	2	0
Massachusetts Institute of Technology	7	1	15	0	4	0	6	0	1	0	68	3	0	1
Michigan State College			3	0	2	0							19	0
University of Minnesota			2	2	8	0	1	0	7	2	26	9	15	7
Mississippi Agricultural and Mechanical College			3	0	2	0					50	16	13	4
University of Missouri	2	0	1	0	2	0	2	0	2	0	63	29	5	1
Montana State College													1	0

University of Nebraska			1	0			8	0	7	4	10	9	1	1
University of Nevada									1	0				
University of New Hampshire	1	0	2	0										
Rutgers University	1	0	2	0	1	0					3	1	3	0
Cornell University	18	1	18	1	9	2	9	0	5	0	85	7	26	4
North Carolina State College	2	0	4	0	6	0								
North Dakota Agricultural College											3	1	3	0
Ohio State University			[1] (11)		[1] (2)		[1] (5)		[1] (1)		[1] (33)		[1] (73)	
Oklahoma Agricultural and Mechanical College											0	1	3	0
Oregon Agricultural College							2	2	11	15	2	0		
Pennsylvania State College	2	0	1	0							5	1	1	0
Clemson Agricultural College			7	0	31	0								
South Dakota State College														
University of Tennessee			[1] (7)		[1] (8)				[1] (1)		[1] (4)		[1] (2)	
Agricultural and Mechanical College of Texas											6	0	2	0
Agricultural College of Utah									31	18	1	0	0	1
University of Vermont	0	1	1	0	1	0					0	1	0	1
Virginia Agricultural and Mechanical College	2	0	1	0	1	0					1	0		
State College of Washington							1	0	14	14	1	1	1	1
West Virginia University			1	1							2	2	1	0
University of Wisconsin	1	0	5	5	4	2	2	1	1	2	577	427	111	91
University of Wyoming			[1] (1)						[1] (5)		[1] (16)		[1] (1)	
Total	374	254	1,879 [1] (33)	40	1,407 [1] (21)	378	486 [1] (5)	236	1,153 [1] (16)	656	9,073 [1] (121)	3,531	2,932 [1] (114)	793

[1] Not segregated.

TABLE 19.—*Number of students from each State and the District of Columbia, from outlying parts of the United States and from foreign countries, attending land-grant institutions, 1927–28*—Continued

Institution	Students residing in—													
	Iowa		Kansas		Kentucky		Louisiana		Maine		Maryland		Massachusetts	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	30	31	32	33	34	35	36	37	38	39	40	41	42	43
Alabama Polytechnic Institute	1	0			1	0	3	2					1	0
University of Arizona	[1] (27)		[1] (21)		[1] (8)		[1] (2)		[1] (2)				[1] (5)	
University of Arkansas			[1] (3)				[1] (6)							
University of California	21	17	10	18	4	1	3	3	0	5	1	1	7	14
Colorado Agricultural College	4	1	3	2							3	0		
Connecticut Agricultural College													11	1
University of Delaware			1	0							4	21		
University of Florida									1	0			3	0
Georgia State College of Agriculture					2	1								
University of Hawaii			0	1									1	1
University of Idaho	1	0			1	0							3	0
University of Illinois	96	40	41	14	21	20	6	4	10	1	2	1	31	9
Purdue University	9	2	13	0	48	4	1	0	2	0			14	1
Iowa State College	2,714	1,386	21	11	7	5	5	4	1	0			6	1
Kansas State Agricultural College	8	3	1,992	1,067					0	1			1	0
University of Kentucky	4	2			531	156	0	2	1	0	2	0		
Louisiana State University							1,223	505					2	0
University of Maine	1	0							803	273			102	3
University of Maryland			1	0					2	0	530	178	8	0
Massachusetts Agricultural College									7	1			452	130
Massachusetts Institute of Technology	13	0	12	0	14	0	7	0	52	1	13	0	1,322	27
Michigan State College	2	0	1	0	1	0					1	0	2	1
University of Minnesota	145	72	20	5	7	0	2	1	0	1	2	1	11	2
Mississippi Agricultural and Mechanical College	1	0			1	0	16	0						
University of Missouri	27	8	29	19	14	3	14	9					2	1

Montana State College	3	2	1	1										
University of Nebraska	103	160	113	103	0	1								
University of Nevada	1	0	1	0									1	0
University of New Hampshire									20	10			98	36
Rutgers University	1	0			1	0			2	0	6	2	4	7
Cornell University	21	3	8	0	13	2	8	2	13	0	44	3	89	16
North Carolina State College					1	0					2	0	6	0
North Dakota Agricultural College													1	0
Ohio State University	[1] (16)		[1] (5)		[1] (22)		[1] (4)		[1] (1)		[1] (5)		[1] (18)	
Oklahoma Agricultural and Mechanical College	2	0	16	6			2	1						
Oregon Agricultural College			1	0					1	0				
Pennsylvania State College	1	0	1	1	1	0					5	0	8	1
Rhode Island State College									2	0			61	9
Clemson Agricultural College							3	0						
South Dakota State College	10	4												
University of Tennessee			[1] (3)		[1] (33)		[1] (11)				[1] (1)			
Agricultural and Mechanical College of Texas	1	0	2	0	1	0	24	0						
University of Vermont	1	0							3	3	0	2	104	38
Virginia Agricultural and Mechanical College	1	0	1	0	3	0	1	1			8	0	1	0
State College of Washington	2	0	0	1			1	0						
West Virginia University	1	0	1	0	4	2			0	1	13	9	3	0
University of Wisconsin	81	60	16	25	13	7	5	8	2	1	11	9	9	8
University of Wyoming	[1] (13)		[1] (13)		[1] (1)									
Total	3,276 [1] (56)	1,760	2,305 [1] (45)	1,274	689 [1] (64)	202	1,324 [1] (23)	542	922 [1] (3)	298	647 [1] (6)	227	2,364 [1] (23)	306

[1] Not segregated.

TABLE 19.—*Number of students from each State and the District of Columbia, from outlying parts of the United States and from foreign countries, attending land-grant institutions, 1927–28*—Continued

Institution	Students residing in—											
	Michigan		Minnesota		Mississippi		Missouri		Montana		Nebraska	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	44	45	46	47	48	49	50	51	52	53	54	55
Alabama Polytechnic Institute					10	0						
Alaska Agricultural College and School of Mines									2	1		
University of Arizona	[1] (25)		[1] (7)				[1] (32)		[1] (3)		[1] (6)	
University of Arkansas			[1] (1)		[1] (15)							
University of California	8	13	17	16	1	1	11	15	17	20	16	9
Colorado Agricultural College	1	0			1	0	3	1	1	1	9	2
Connecticut Agricultural College	1	0					1	0				
University of Florida	4	0			1	0						
Georgia State College of Agriculture	0	1			1	1						
University of Hawaii											1	0
University of Idaho	2	0	2	1					9	3		
University of Illinois	48	17	29	9	16	5	162	70	9	2	18	7
Purdue University	45	3	9	1			14	1	2	1	6	1
Iowa State College	6	4	61	13	7	1	57	26	12	1	69	36
Kansas State Agricultural College	2	1	3	1	1	0	25	32			17	7
University of Kentucky	5	4	1	0	2	2	1	1				
Louisiana State University					61	17	1	1				
University of Maryland	1	0	1	0	2	0	2	0				
Massachusetts Agricultural College	1	0	1	0			1	0				
Massachusetts Institute of Technology	25	0	13	0	2	0	38	0	8	0	7	0
Michigan State College	1,964	812	3	0	4	0	1	0	2	0	2	0
University of Minnesota	50	22	6,452	3,878	1	0	22	6	67	25	23	7
Mississippi Agricultural and Mechanical College					1,289	0	1	0				
University of Missouri	3	2	11	0	5	5	2,221	1,362	2	1	10	2
Montana State College	1	0	2	2					675	281		
University of Nebraska			6	6	0	2	47	54	6	2	3,963	4,322
University of Nevada	1	1									0	1
Rutgers University	1	1					2	0				
Cornell University	38	4	10	4	6	0	19	2	3	0	8	3
North Carolina State College			1	0	3	0	1	0				

North Dakota Agricultural College			119	78					7	0	1	0
Ohio State University	[1] (20)		[1] (10)		[1] (6)		[1] (7)				[1] (5)	
Oklahoma Agricultural and Mechanical College	1	0	1	0			7	3			1	1
Oregon Agricultural College			1	1					2	3	0	1
Pennsylvania State College	2	0	2	0								
South Dakota State College	1	2	56	17			0	1	1	0	3	0
University of Tennessee			[1] (2)		[1] (89)		[1] (15)		[1] (1)			
Agricultural and Mechanical College of Texas					10	0	5	0				
University of Vermont											1	0
Virginia Agricultural and Mechanical College	3	0	1	0			2	0				
State College of Washington	2	0	2	1			1	0	13	5	0	1
West Virginia University	1	1			1	0						
University of Wisconsin	54	97	64	60	3	6	51	54	11	7	23	18
University of Wyoming	[1] (2)		[1] (2)		[1] (1)		[1] (7)		[1] (9)		[1] (32)	
Total	2,271 [1] (47)	985	6,868 [1] (22)	4,088	1,427 [1] (111)	40	2,696 [1] (61)	1,629	849 [1] (13)	353	4,178 [1] (43)	4,418

[1] Not segregated.

TABLE 19.—*Number of students from each State and the District of Columbia, from outlying parts of the United States and from foreign countries, attending land-grant institutions, 1927–28*—Continued

Institution	Students residing in—													
	Nevada		New Hampshire		New Jersey		New Mexico		New York		North Carolina		North Dakota	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	56	57	58	59	60	61	62	63	64	65	66	67	68	69
Alabama Polytechnic Institute					1	0			3	0	7	1		
Alaska Agricultural College and School of Mines							1	0						
University of Arizona	[1] (2)				[1] (6)		[1] (53)		[1] (14)		[1] (3)		[1] (2)	
University of Arkansas							[1] (2)		[1] (2)					
University of California	13	8	2	3	8	5	10	9	36	30	2	0	4	9
Colorado Agricultural College							3	1	1	1				
Connecticut Agricultural College			1	0	1	0			1	0				
University of Delaware					17	9			4	1	1	0	0	1
University of Florida			2	0	3	0			5	0				
Georgia State College of Agriculture									3	1	4	2	0	1
University of Idaho									7	0			1	0
University of Illinois	1	0	4	1	23	3	11	3	85	8	1	2	13	2
Purdue University			1	0	16	0	4	0	46	3	1	0	1	0
Iowa State College					2	1	3	3	8	4	2	0	5	6
Kansas State Agricultural College					1	1	5	3	0	1	2	0		
University of Kentucky					0	6	0	1	6	1	1	3		
Louisiana State University					2	0					2	0		
University of Maine			6	2	6	0			6	3				
University of Maryland					39	3			29	1	2	0		
Massachusetts Agricultural College			1	0	7	0			9	3				
Massachusetts Institute of Technology			38	2	77	2	2	0	236	4	9	0	3	0
Michigan State College			1	0	4	1	0	4	9	5			0	1
University of Minnesota	1	0			3	0			24	2	9	0	126	123
University of Missouri					15	0	10	13	29	0			2	0
Montana State College	1	0											4	1

University of Nebraska							3	1	13	0			5	2
University of Nevada	380	353							1	2				
University of New Hampshire			947	406	5	0			6	2				
Rutgers University			0	2	982	877			196	103	0	1		
Cornell University	2	0	8	1	320	48	4	0	2,561	1,032	21	4	1	0
North Carolina State College					1	0			4	0	1,363	14		
North Dakota Agricultural College													676	292
Ohio State University			[1] (5)		[1] (49)		[1] (1)		[1] (47)		[1] (8)		[1] (2)	
Oklahoma Agricultural and Mechanical College							2	2	1	0				
Oregon Agricultural College					1	0								
Pennsylvania State College			3	2	64	2			57	3	1	1		
Rhode Island State College			2	0	5	1			1	0				
Clemson Agricultural College					1	0			5	0	22	0		
South Dakota State College							1	0					6	2
University of Tennessee					[1] (4)				[1] (20)		[1] (22)			
Agricultural and Mechanical College of Texas					1	0	1	0	2	0				
Agricultural College of Utah	1	1							1	0				
University of Vermont			11	13	20	13			53	29				
Virginia Agricultural and Mechanical College					4	0			2	0	11	0		
State College of Washington									1	1	1	0	4	2
West Virginia University					22	1			94	4				
University of Wisconsin			1	2	18	14	1	2	97	77	3	3	10	18
University of Wyoming					[1] (2)		[1] (1)		[1] (1)				[1](5)	
Total	399 [1] (2)	362	1,028 [1] (5)	434	1,669 [1] (61)	987	61 [1] (57)	42	3,642 [1] (84)	1,321	1,465 [1] (33)	31	861 [1] (9)	460

[1] Not segregated.

TABLE 19.—*Number of students from each State and the District of Columbia, from outlying parts of the United States and from foreign countries, attending land-grant institutions, 1927–28*—Continued

Institution	Students residing in—													
	Ohio		Oklahoma		Oregon		Pennsylvania		Porto Rico		Rhode Island		South Carolina	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	70	71	72	73	74	75	76	77	78	79	80	81	82	83
Alabama Polytechnic Institute	1	0											11	0
Alaska Agricultural College and School of Mines					1	0								
University of Arizona	[1] (36)		[1] (27)		[1] (5)		[1] (13)				[1] (1)			
University of Arkansas	[1] (1)		[1] (31)				[1] (1)							
Univeristy of California	11	15	9	7	33	34	15	7	2	0	0	2	1	0
Colorado Agricultural College	2	1	2	0	0	1	2	0						
Connecticut Agricultural College							1	0			2	0		
University of Delaware							34	25						
University of Florida	2	0					4	0	1	0			3	0
Georgia State College of Agriculture							0	1					4	1
University of Idaho	3	0	0	1	9	6	1	0			1	0		
University of Illinois	91	25	40	24	6	0	73	1			2	2	2	0
Purdue University	178	14	4	0	1	0	32	1						
Iowa State College	14	10	24	17	4	1	6	3	3	0	1	1	2	1
Kansas State Agricultural College	2	0	10	8	1	0	1	0						
University of Kentucky	17	12	1	3			4	6						
Louisiana State University	1	1	0	1			2	0	7	0			1	0
University of Maine	1	0					2	1			3	1		
University of Maryland	3	1					35	5	5	0				
Massachusetts Agricultural College					1	0	1	0			4	0		
Massachusetts Institute of Technology	46	0	6	0	3	0	88	0	6	0	23	1	7	0
Michigan State College	26	15	1	0	1	0	7	0			1	0	2	0
University of Minnesota	26	7	5	3	9	1	33	3	0	1			9	0
Mississippi Agricultural and Mechanical College							1	0						
University of Missouri	4	3	82	52			6	0						

Montana State College	1	1												
University of Nebraska	4	4	8	6	2	1	2	4	2	0				
University of Nevada			1	0			2	0						
University of New Hampshire	2	0	1	0			0	1			5	0		
Rutgers University	4	2					28	19	0	3				
Cornell University	164	11	9	1	8	0	315	20	11	0	7	1	9	3
North Carolina State College	4	0					6	0					50	0
North Dakota Agricultural College			1	0	1	0								
Ohio State University	[1] (10,442)		[1] (6)		[1] (2)		[1] (145)		[1] (3)		[1] (1)		[1] (4)	
Oklahoma Agricultural and Mechanical College			1,685	971			2	0						
Oregon Agricultural College	3	0			2,233	1,034								
Pennsylvania State College	23	0					3,227	569	13	0				
Rhode Island State College											298	117		
Clemson Agricultural College													1,102	0
South Dakota State College			0	1										
University of Tennessee	[1] (5)		[1] (8)				[1] (3)						[1] (4)	
Agricultural and Mechanical College of Texas	2	0	29	0									2	0
University of Vermont	1	0					3	5			3	3		
Virginia Agricultural and Mechanical College	9	0			1	0	9	0					4	0
State College of Washington	1	0			13	1								
West Virginia University	26	8			1	0	160	94	16	1				
University of Wisconsin	87	71	16	19	11	4	39	56			2	0	6	0
University of Wyoming	[1] (1)		[1] (4)		[1] (2)		[1] (2)							
Total	759 [1] (10,485)	201	1,934 [1] (76)	1,114	2,339 [1] (9)	1,083	4,141 [1] (164)	821	66 [1] (3)	5	352 [1] (2)	128	1,215 [1] (8)	5

[1] Not segregated.

TABLE 19.—*Number of students from each State and the District of Columbia, from outlying parts of the United States and from foreign countries, attending land-grant institutions, 1927–28*—Continued

Institution	Students residing in—													
	South Dakota		Tennessee		Texas		Utah		Vermont		Virginia		Washington	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	84	85	86	87	88	89	90	91	92	93	94	95	96	97
Alabama Polytechnic Institute			9	1	1	0								
Alaska Agricultural College and School of Mines														
University of Arizona	[1] (3)		[1] (8)		[1] (62)				[1] (1)		[1] (4)		3	0
University of Arkansas	[1] (1)		[1] (2)		[1] (28)								[1] (15)	
University of California	5	5	5	1	24	18	51	38	0	1	5	1	23	36
Colorado Agricultural College	2	0			6	0	2	0						
University of Delaware									0	1	2	3		
University of Florida			1	0	1	0			1	0	1	0		
Georgia State College of Agriculture			1	0	1	1					4	2		
University of Hawaii					1	0	1	1	0	1			0	1
University of Idaho	1	0	0	1	1	0	4	1					80	63
University of Illinois	20	5	15	6	32	11	7	0	6	1	6	1	8	0
Purdue University	3	1	9	1	8	1					1	0	2	0
Iowa State College	51	22	8	4	22	5	2	1	2	0			5	2
Kansas State Agricultural College	1	1	1	0	5	2								
University of Kentucky			6	6	1	1			0	1	4	3		
Louisiana State University			4	2	18	8					0	1		
University of Maine									0	1				
University of Maryland			0	1							11	2		
Massachusetts Agricultural College					2	0	1	0	3	0			1	0
Massachusetts Institute of Technology			4	0	32	1	4	1	20	0	9	1	11	0
Michigan State College	2	0	1	0	3	0	2	0	0	1	1	0	1	1
University of Minnesota	145	85	13	3	22	0	7	1	2	0	13	0	16	5
Mississippi Agricultural and Mechanical College			12	0	2	0								
University of Missouri	2	1	3	3	36	26	3	0			0	2		

Montana State College	1	0			1	0	7	0					1	1
University of Nebraska	46	33	1	0	4	2	1	1	1	0	0	1	4	4
University of Nevada							1	0					1	1
University of New Hampshire									1	0	9	2		
Rutgers University							2	0			2	0		
Cornell University	3	0	17	1	14	2	5	1	8	1	18	7	11	2
North Carolina State College			3	0	1	0					38	0		
North Dakota Agricultural College	5	1											2	0
Ohio State University	[1] (4)		[1] (10)		[1] (14)		[1] (2)		[1] (7)		[1] (11)		[1] (6)	
Oklahoma Agricultural and Mechanical College	1	0	2	0	36	3								
Oregon Agricultural College	1	0					2	0					38	30
Pennsylvania State College	1	0							2	1	5	1	3	0
Clemson Agricultural College													3	0
South Dakota State College	502	271			1	0								
University of Tennessee			[1] (2,727)		[1] (16)						[1] (13)		[1] (1)	
Agricultural and Mechanical College of Texas			4	0	2,466	0					3	0		
Agricultural College of Utah							617	458						
University of Vermont									384	332	1	0		
Virginia Agricultural and Mechanical College			9	0	1	0					1,086	37		
State College of Washington							2	0					1,690	1,074
West Virginia University	1	0	2	0							2	1		
University of Wisconsin	31	19	7	9	15	16	9	4	1	0	4	2	6	7
University of Wyoming	[1] (4)		[1] (1)		[1] (5)		[1] (10)						[1] (3)	
Total	824	444	137	39	2,757	97	730	507	431	341	1,225	67	1,909	1,227
	[1] (12)		[1] (2,748)		[1] (125)		[1] (12)		[1] (8)		[1] (28)		[1] (25)	

[1] Not segregated.

TABLE 19.—*Number of students from each State and the District of Columbia, from outlying parts of the United States and from foreign countries, attending land-grant institutions, 1927–28*—Continued

Institution	Students residing in—													
	West Virginia		Wisconsin		Wyoming		District of Columbia		Canal Zone		Philippine Islands		Foreign countries	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	98	99	100	101	102	103	104	105	106	107	108	109	110	111
Alabama Polytechnic Institute							1	0			1	0	5	0
Alaska Agricultural College and School of Mines														
University of Arizona	[1] (7)		[1] (13)	1 0										
University of Arkansas							1	0	2	0	16	0	18	0
University of California	2	0	12	7	3	2	1 6	0 4			43	3	206	45
Colorado Agricultural College					18	0	0	1					10	0
Connecticut Agricultural College													2	0
University of Florida	2	0	1	0							1	0	3	0
Georgia State College of Agriculture	0	1												
University of Hawaii									[2] 1	0	5	0	4	3
University of Idaho			2	0	4	3					10	0	16	0
University of Illinois	11	1	71	7	3	5	6	1			19	1	101	8
Purdue University	14	2	15	1	4	0	5	0	1	0	18	0	47	1
Iowa State College	4	1	21	3	5	5					6	0	41	5
Kansas State Agricultural College			1	0	1	0	2	0			2	0	3	0
University of Kentucky	16	6											2	0
Louisiana State University											14	0	14	0
University of Maine													4	0
University of Maryland	5	1					232	53					3	0
Massachusetts Agricultural College													2	1
Massachusetts Institute of Technology	8	0	18	0	1	0	56	2	8	0	7	0	168	0
Michigan State College	0	2	7	3			1	1			3	0	15	1
University of Minnesota	2	1	190	136	5	0	7	0			33	1	147	16
University of Missouri	0	1	5	2	2	4					3	0	22	3
Montana State College			1	0	2	0							4	2

University of Nebraska			2	1	61	25			1	1	27	0	13	3
University of Nevada					1	0					4	0	8	1
University of New Hampshire													1	1
Rutgers University	1	0	1	0	1	0	2	2					8	2
Cornell University	16	2	16	1	3	1	39	11			11	1	166	9
North Carolina State College	4	0	1	0									10	0
North Dakota Agricultural College			1	0							1	0	4	2
Ohio State University	[1] (93)		[1] (7)		[1] (1)		[1] (7)		[1] (4)		[1] (10)		[1] (53)	
Oklahoma Agricultural and Mechanical College													2	0
Oregon Agricultural College					1	1					4	1	5	7
Pennsylvania State College	4	0	1	0			4	0					9	1
Rhode Island State College							2	0						
Clemson Agricultural College	1	0											1	0
South Dakota State College			4	1			1	0					1	1
University of Tennessee	[1] (3)						1	0					1	0
Agricultural and Mechanical College of Texas													25	0
Agricultural College of Utah			1	0	6	6							5	0
University of Vermont							1	1					3	0
Virginia Agricultural and Mechanical College	40	0					7	0			1	0	3	0
State College of Washington	1	0	2	1	2	0	1	0	0	[2] 1	34	0	22	9
West Virginia University	1,803	1,172	0	1			0	2			1	0	4	0
University of Wisconsin	3	4	4,476	2,358	0	2	3	6			12	1	104	23
University of Wyoming			[1] (1)		[1] (996)		1	0						
Total	1,937	1,194	4,850	2,522	123	54	380	84	13	2	276	8	1,232	144
	[1] (103)		[1] (21)		[1] (997)		[1] (7)		[1] (4)		[1] (10)		[1] (53)	

[1] Not segregated.

[2] Guam.

Foreign Students

Forty-three of the land-grant institutions for the year 1927–28 reported 1,429 foreign students ranging in number from 1 to 251. One thousand of these foreigners, or 69.5 per cent, are in six institutions; the universities of California, Illinois, Minnesota, and Wisconsin, the Massachusetts Institute of Technology, and Cornell University. Each of 25 of the land-grant institutions has 10 or fewer foreign students; 8 have between 10 and 25; 3 between 25 and 50; and 1 has 53.

Sixty-eight countries of origin are represented by students in members ranging from 1 to 316. One thousand and twenty-nine of them or 70 per cent, come from nine countries as follows: Canada, 316; China, 316; Mexico, 83; Japan, 75; India, 70; Russia, 51; Union of South Africa, 47; England, 38; and Germany, 33. Each of 46 countries has 10 or fewer students in the land-grant institutions; each of 13 has more than 25 but fewer than 50. With the exception of the Union of South Africa, those countries nearest the United States, Canada, and Mexico, and those with the largest populations, China, India, and the Union of Soviet Republics, furnish the most students, so that superficially it seems that juxtaposition and population numbers are the main factors in determining the nationality of the foreign student. This does not apply to Japan which has a population about equal to that of Germany or of England but is represented by more young people than those two countries combined. In the case of Japan this is the result of a determined national policy of keeping capable young people at study abroad; no such deliberate purpose is followed by the Government of England or of Germany.

In a broad way the matter of the foreign student in the land-grant institutions resolves itself into one of the relations between representatives of some 9 foreign countries, and about 6 or 7 institutions of higher learning in the United States. About 11 per cent of the students are women. By larger areas the British Empire has 528 representatives; the Far East, 414; Latin America, 227; Germanic Europe, 89; Slavonic Europe, 78; the Near East, 58; and Latin-language Europe, 44.

Only 39 of the land-grant institutions reported the enrollment of foreign students by classes. The data are available for 1,057 students and show 1.8 per cent unclassified; 15.1 per cent freshmen; 13.6 per cent sophomores; 14.4 per cent juniors; and 18.1 per cent seniors. Undergraduate and unclassified students represent 63 per cent of the total. The graduate students with first degrees only are about one-fifth, or 21.5 per cent, of the number; graduates with advanced degrees, about one-seventh, or 15.5 per cent. That the per cent of

students in the four undergraduate classes is practically equal and that the graduate students constitute over one-third of the total is to be expected among these young people from foreign countries, many of whom enter at levels above the freshman year and many of whom come only for graduate studies. The detailed figures are given in Table 20.

The students from the British Empire, as shown in Table 21, are studying half on graduate and half on undergraduate levels. The small number of Latin-language Europe is mostly graduate students. From the other sections come mainly undergraduates. This is true particularly of Latin America and is probably in part due to the organization of education in those countries whereby the degree of bachelor is in reality a diploma of graduation from a secondary school.

Data on the courses being pursued by 1,362 of these students are available for 43 land-grant institutions. They are presented in Table 22. A little more than one-half of them are in agriculture with 15.5 per cent, engineering with 32.8 per cent, home economics, with 2.2 per cent, and veterinary medicine with 0.6 per cent, lines of instruction for which the land-grant colleges were founded and to which they are supposed to give most of their efforts. A little more than one-fourth, or 26.8 per cent, are in the arts and science courses. Graduate studies with 5.3 per cent, other courses with 11 per cent, commerce and business with 4.4 per cent, and teacher training with 1.4 per cent occupy the time and efforts of something less than one-fourth, or 22.1 per cent, of the total.

The Latin American students are in the land-grant colleges principally to be trained in agriculture and engineering. About four-fifths of them are in those courses. About the same is true of those from Slavonic-language Europe and the Near East. Arts and sciences, commerce and business, and other fields attract such high percentages of the students from the Far East, the British Empire, Germanic-language Europe, and Latin-language Europe that even in these schools of agriculture and mechanic arts the agriculture and engineering courses enroll only about half the foreign student contingent. The students of commerce and business are mostly from China, Japan, and Canada. The data by countries and larger areas are given in Table 23.

TABLE 20.—*Distribution by classes of foreign students in 39 land-grant institutions, 1927–28*

Institution	Undergraduates												Graduates						Grand total
	Unclassified		Freshmen		Sophomores		Juniors		Seniors		Total		With only first degrees		With advanced degrees		Total		
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Alabama Polytechnic Institute			2	0	3	0					5	0							5
University of Arizona			4	0	1	0	4	0	7	0	16	0	2	0			2	0	18
University of California			34	7	20	2	42	4	37	10	133	23	40	12	33	10	73	22	251
Colorado Agricultural College			4	0	5	0			1	0	10	0							10
Connecticut Agricultural College			1	0					1	0	2	0							2
University of Florida					1	0			1	0	2	0	1	0			1	0	3
University of Hawaii				1	0	1	1	1	1	0	2	3	2	0			2	0	7
University of Idaho			8	0	5	0	1	0	2	0	16	0							16
University of Illinois																			109
Purdue University			6	0	11	0	16	0	9	1	42	1	4	0	1	0	5	0	48
Iowa State College			8	0	5	0	2	0	3	0	18	0	19	5	4	0	23	5	46
Kansas State Agricultural College					1	0			1	0	2	0	1	0			1	0	3
University of Kentucky					1	0			1	0	2	0							2
Louisiana State University			4	0	4	0	2	0	2	0	12	0	2	0			2	0	14
University of Maine					1	0	1	0			2	0	1	0	1	0	2	0	4
University of Maryland			2	0							2	0			1	0	1	0	3
Massachusetts Agricultural College			2	0	0	1					2	1							3
Massachusetts Institute of Technology			31	0	34	0	21	0	43	0	129	0	25	0	14	0	39	0	168
Michigan State College			6	0	2	0	3	0	2	1	13	1	2	0			2	0	16
University of Minnesota	5	2	2	4	8	1	11	1	21	1	47	9	42	5	58	2	100	7	163
University of Missouri	5	1	3	0	2	1	3	1	3	0	16	3	6	0			6	0	25
Montana State College			0	1	0	1	2	0	1	0	3	2	1	0			1	0	6
University of Nebraska			3	0	1	1	2	0	1	1	7	2	5	1	1	0	6	1	16
University of Nevada			1	0			5	0	2	1	8	1							9
University of New Hampshire					1	0			0	1	1	1							2

Rutgers University			3	2					1	0	4	2	1	0	3	0	4	0		10
Cornell University											87	4					79	5		175
North Carolina State College			2	0	1	0	4	0	2	0	9	0			1	0	1	0		10
North Dakota Agricultural College			1	0	1	0	0	2	2	0	4	2								6
Ohio State University																				53
Oklahoma Agricultural and Mechanical College	1	0	1	0							2	0								2
Oregon Agricultural College				2	5	3					5	5			0	2	0	2		12
Pennsylvania State College																	9	1		10
Clemson Agricultural College															1	0	1	0		1
South Dakota State College					1	1					1	1								2
University of Tennessee	1	0									1	0								1
Agricultural and Mechanical College of Texas											25	0								25
Agricultural College of Utah			1		1				3		5									5
University of Vermont					1				2		3									3
Virginia Agricultural and Mechanical College			1		1						2		1				1			3
State College of Washington	1		3	2	2	3	7	1	5	3	18	9	4				4			31
West Virginia University			1		1						2		2				2			4
University of Wisconsin	2	1	7		7	2	14	1	16	2	46	6	35	8	24	8	59	16		127
Total	15	4	141	19	127	17	141	11	170	21	706	76	196	31	142	22	426	59	[1]	1,429

[1] Includes 162 students not distributed by classes.

TABLE 21.—*Distribution of foreign students by country of origin and by classes in land-grant institutions, 1927–28*

Country	Undergraduates												Graduates						Grand total	
	Unclassified		Freshmen		Sophomores		Juniors		Seniors		Total		With only first degrees		With advanced degrees		Total			
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Argentina			2		1		1		5	1	9	1	1		1		2		11	1
Bolivia			3				1				4		2				2		6	
Brazil	1		1						1		3		1				1		4	
Chile			1						1		2		1	1			1	1	3	1
Colombia	1		5		6				1		13								13	
Costa Rica														1				1	6	1
Cuba	2		2		2		2				6								12	
Dominican Republic			3		6				1		12				1		1		1	
Ecuador																			3	
Guatemala			2						1		3								1	1
Haiti			1							1	1	1							2	
Honduras											1		1				1		1	
Mexico	1		18		16	2	8		8	2	51	4	2	1	1		3	1	54	5
Nicaragua			2				1				3								3	
Panama			1		1		6		3		11								11	
Peru			2																	
Salvador			1		1		4		3		9								9	
Uruguay									1		3								3	
Venezuela			1		1		2		1		5		1		1		1		1	
Total Latin America	5		46		35	2	25		26	4	137	6	9	3	4		13	3	6	
Belgium																			150	9
France			2		1				1		4		1	1		2	1	3	1	3
Italy					1						1		2	2	1	2	3	4	7	4
Portugal			1								1				1		1		2	
Spain			2								2		2	1	2		4	1	6	1
Switzerland	1	1									1	1	2		2		4		5	1
Total Latin Europe	1	1	5		2				1		9	1	7	4	6	4	13	8	22	9

Austria					1				1		1		1		1		2		3			
Germany		1	4		2		2		4		12	1	8	2	3		11	2	23	3		
Netherlands					1				2		3				1	1	1	1	4	1		
Denmark			1				1		3		5		2		3		5		10			
Norway	1	2	1		4		2		5	1	13	3	4		1		5		18	3		
Sweden			1				2		1		4		2		2		4		8			
Total Germanic Europe	1	3	7		8		7		15	1	38	4	17	2	11	1	28	3	66	7		
Bulgaria					1		2		2		5								5			
Czechoslovakia			1								1		1	1			1	1	2	1		
Poland								1	1		1	1	1	1	1		2	1	3	2		
Soviet Union			6		7		7		8	2	28	2	6	3	5		11	3	39	5		
Yugoslavia			1				1				2								2			
Finland														1				1		1		
Lithuania									1		1								1			
Estonia													1				1		1			
Total Slavonic Empire			8		8		10	1	12	2	38	3	9	6	6		15	6	53	9		
Egypt					2		2	2	1		5	2	2		6		8		13	2		
Iraq					2		2		1		5		1				1		6			
Persia					1						1								1			
Greece			1		1				3		5		2	1	2		4	1	9	1		
Turkey			1				2		2	1	5	1		1		1		2	5	3		
Syria			1		1		1		4		7		1		1		2		9			
Total Near East			3		7		7	2	11	1	28	3	6	2	9	1	15	3	43	6		
China	1		22	6	26	1	39	4	43	2	131	13	37		20	4	57	4	188	17		
Japan	3		7	2	5		6	1	13		34	3	9		4		13		47	3		
Korea			4		1	1	1		1		7	1			1	1	1	1	8	2		
Siam					2		1				3		1				1		4			
Total Far East	4		33	8	34	2	47	5	57	2	175	17	47		25	5	72	5	247	22		
Cyprus					1						1								1			
England			1				3		1	1	5	1	9	1	5	3	14	4	19	5		
Wales										1		1	1		1		2		2	1		
Ireland													2	1	2	1	4	2	4	2		
Scotland			1				1				2		3		2		5		7			
India			6	1	10		6		11		33	1	12		8		20		53	1		
Straits Settlements							1				1								1			
Federated Malay States					1						1								1			
Palestine			5				1				6								6			
Canada	4		25	11	16	12	27	5	27	9	99	37	65	11	51	7	116	18	215	55		
Newfoundland			1								1								1			
British West Indies			1		2		1				4		1		1		2		6			
Australia			1	1	1		1				3	1	6		4		10		13	1		
New Zealand					1					1	1	1			1		1		2	1		
Union of South Africa			4		3	1	3		7		17	1	9		5	1	14	1	31	2		
Total British Empire	4		45	13	35	13	44	5	46	12	174	43	108	13	80	12	188	25	362	68		
Grand total	15	4	147	21	129	17	140	13	168	22	599	77	203	30	141	23	344	53	943	130		

TABLE 22.—*Distribution by courses of foreign students in 43 land-grant institutions, 1927–28*

Institution	Agriculture		Engineering	Home economics		Teacher training		Arts and sciences		Commerce and business		Veterinary medicine	Other		Graduate		Total	
	Men	Women	Men	Men	Women	Men	Women	Men	Women	Men	Women	Men	Men	Women	Men	Women	Men	Women
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Alabama Polytechnic Institute			5														5	0
University of Arizona	3	0	6					9	0								18	0
University of California	36	1	53	6	4	4	4	62	29	22	7		15	3			198	48
Colorado Agricultural College	4	0	2					1	0			3					10	0
Connecticut Agricultural College	2	0															2	0
University of Florida	1	0	1										1	0			3	0
University of Hawaii			1					1	1								2	1
University of Idaho	3		4			1	0			4	0		4	0			16	0
University of Illinois	3	0	29			1	0	5	0	6	0		46	3			90	3
Purdue University	8	0	38					0	1				1	0			47	1
Iowa State College	17	1	9	0	5			13	0			2	1	1			42	7
Kansas State Agricultural College	5	0	1					1	0								7	0
University of Kentucky			2														2	0
Louisiana State University	6	0	8														14	0
University of Maine			1					1							3		5	0
University of Maryland	4	0						1	0								5	0
Massachusetts Agricultural College	2			0	1												2	1
Massachusetts Institute of Technology			166					1					1				168	0
Michigan State College	1		1					1				1					4	0
University of Minnesota	17	2	11			0	1	75	8	6	0		37	6			146	17
University of Missouri	1	0	5					5	1				8	3			19	4
Montana State College			2					2	0	0	2						4	2
University of Nebraska			1					5	1				1	1	6	1	13	3
University of Nevada			5					2	0								7	0
University of New Hampshire			1	0	1												1	1

Rutgers University	7	0		0	1	0	1	0	1								8	2
Cornell University	24	0	33	1	2			15	2				4	0	58	4	135	8
North Carolina State College	6	0	1										3	0			10	0
North Dakota Agricultural College	2	0				0	1	1					1	1			4	2
Ohio State University	3	0	13			3	0	14	2	10	0						43	2
Oklahoma Agricultural and Mechanical College			1					1	0								2	0
Oregon Agricultural College	2	1		0	3					0	1		1	1			3	6
Pennsylvania State College	9	0															9	0
Clemson Agricultural College													1	0			1	0
South Dakota State College			1	0	1												1	1
University of Tennessee			1														1	0
Agricultural and Mechanical College of Texas	10	0	13					2									25	0
Agricultural College of Utah	5	0															5	0
University of Vermont			1							2	0						3	0
Virginia Agricultural and Mechanical College	1	0	2														3	0
State College of Washington	2	0	7	0	4	1	1	5	3			2	3	2			20	10
West Virginia University	1	0	2					1	0								4	0
University of Wisconsin	20	1	13			1	0	69	22				1	0			104	23
Total	205	6	447	7	23	11	8	294	71	50	10	8	129	21	67	5	1,218	144

TABLE 23.—*Distribution of foreign students by country of origin and courses in land-grant institutions, 1927–28*

Country	Agriculture		Engineering	Home economics		Teacher training		Arts and sciences		Commerce and business		Veterinary medicine	Other field		Graduate		Total	
	Men	Women	Men	Men	Women	Men	Women	Men	Women	Men	Women	Men	Men	Women	Men	Women	Men	Women
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Argentina	2		5					4							2		13	
Bolivia	1		4					3									8	
Brazil	3		3					2									8	
Chile			3					1	1				1	1	1		6	2
Colombia	1		13					2									16	
Costa Rica	1		6						1				1				8	1
Cuba	2		12					1					1				16	
Dominican Republic	2		1					2									5	
Ecuador	2		2						1								4	
Guatemala	1		2														3	1
Honduras	2		2														4	
Mexico	8		47					17	3	1	1		2	1		1	75	6
Nicaragua	1		1					1									3	
Panama	4		8					1									13	
Peru	4		10			1											15	
Salvador			5														5	
Uruguay								1									1	
Venezuela			7					1									8	
Total Latin America	34		131			1		36	6	1	1		5	2	3	1	211	10
Belgium			1						2				1				2	2
France	6		8					3	3			1	1	1			19	4
Italy			1					1					1				3	
Portugal			1														1	
Rumania													1				1	
Spain			2					2	1				2				6	1
Switzerland	2		1					3					2	1	1		9	1
Total Latin Europe	8		14					9	6			1	8	2	1		41	8
Austria	1		3					2	1				1				7	1
Germany	4		10		1	1		8	2	2			2		3		30	3
Netherlands	1		3					2					1	1			7	1
Denmark	1		3					3					1		1		9	
Norway	3	1	3					3	1				9	1			18	3
Sweden	3		1					2					2		1		9	
Total Germanic Europe	13	1	23		1	1		20	4	2			16	2	5		80	8

Bulgaria	2		2					3									7	
Czechoslovakia	1		2					1						1			4	1
Poland	1				1			1	1				3				5	2
Soviet Union	9		22		1		1	8	3		5		1	1	1		41	11
Yugoslavia			1					1					1		1		4	
Finland									1									1
Lithuania			1										1				2	
Estonia			1														1	
Hungaria	1																1	
Total Slavonic Europe	14		29		2		1	14	5		5		6	2	2		65	15
Abyssinia										1							1	
Egypt	10		4														14	
Iraq	6		2												1		9	
Syria								1									1	
Persia	1		1														2	
Greece	3		1									1	1				6	
Turkey	2		4					2	3								8	3
Total Near East	22		12					3	3	1		1	1		1		41	3
China	25		96	2	1	5	3	73	14	29	1	2	24	2	17	1	273	22
Japan	4		24					16	2	5			11		3		63	2
Korea	3		2					3							2		10	
Siam			3					1									4	
Total Far East	32		125	2	1	5	3	93	16	34	1	2	35	2	22	1	350	24
England	6		5	1				6	5			2	5		4		29	5
Wales								2									2	
Ireland	1		3						1				2	1			6	3
Scotland	1	1	2					2					1	1	3	1	9	
India	13		25			1		14		5			3	1	4		65	
Straits Settlements			1														1	
Federated Malay States								1									1	
Palestine	2		4														6	
Union of South Africa	18		6		1			7	2				3	1	5		39	4
Bermudas			1					1							1		3	
Canada	36	4	63	4	18	3	4	78	22	7	3	1	40	7	16	2	248	60
Newfoundland	1																1	
British West Indies	2		2					2				1					7	
Australia			1					6					4				11	
New Zealand	2								1								2	1
Total British Empire	82	5	113	5	19	4	4	119	31	12	3	4	58	11	33	3	430	76
Grand total	205	6	447	7	23	11	8	294	71	15	10	8	129	21	67	5	1,218	144

Nineteen of the land-grant colleges definitely encourage the attendance of foreign students; 29 make no attempt at encouragement, merely accepting foreigners just as they do natives; only one discourages their attendance. The Pennsylvania State College limits the registration of non-Pennsylvanians, including foreigners, to 5 per cent of the total.

The principal questions that arise in respect to the foreign students are: (1) Their training in and ability to use the English language; (2) the application to them of the usual standards of admission; and (3) their ability and willingness to make necessary social adaptations. Two fairly distinct methods of dealing with the foreign student, as far as his knowledge of English is concerned, are used. The first is the plan of insisting that he present admission credentials showing that he has the three or more secondary-school credits in English that are required of American students. This is virtually an assumption that the foreign student, who studied English as a first or second foreign language in his native secondary school with his native tongue as the medium of instruction, has as adequate a knowledge of English as does the American student whose native tongue it is and with whom it is used as the language medium. In a sense this policy also implies that the foreigner's training in his mother tongue is not so valuable an educative experience as the American's training in English is. For the practical purpose of further study in an English medium university, the assumption is not well founded, the implication is true. The policy is an attempt to apply to the foreign student the methods and standards of admission that are used with American students. It is followed rather closely by 32 of the land-grant institutions.

A second plan used in 16 of the land-grant institutions permits the foreigner to substitute entrance credit in his native tongue for the required credit in English. This is an acknowledgment that training in the mother tongue, whatever it may be, has certain educational values, that the foreign student has acquired them by gaining a good control of his own language, and that his secondary-school courses in English as a foreign tongue have not given and ought not to have given him a mastery of English equal to his mastery of his own tongue or to that acquired by an American in a high school. This plan is distinctly advantageous to the foreign student but it throws on the university authorities the necessity of determining the foreign student's ability to use English by some means other than reliance on the statements in his credentials. In the case of nonquota students still in their own countries the plan is being adopted of asking the American consuls not to visa the passports of any who do not have an acquaintance with English sufficient to profit by courses in which it is the language of instruction. Foreigners in the United

States are commonly required to show their proficiency in English by oral or written examinations.

In the determination of the worth of the credentials of foreign students, most of the land-grant colleges are using the service offered in that field by the Office of Education. Ten of them are building up their own offices of admission lists of institutions abroad and other data about foreign-school systems so that they may be equipped to make their own evaluations. Many make use of American consular offices abroad. In general, the case of each student is handled on its individual merits, but the University of California has adopted the following set of standards:

Canada.—Junior matriculation or Grade XI certificate equivalent to graduation from standard high school in United States. Senior matriculation, or Grade XII certificate—admission and from one-half to one year advanced standing, according to program completed by applicant.

England.—Oxford senior matriculation, Cambridge senior matriculation, London matriculation—admission with one-half to one year advanced standing.

France.—Baccalaureate—admission and two years of advanced standing.

Germany.—Gymnasium certificate (8 class, classical)—admission and two years' advanced standing. Real schule certificate—admission and one year advanced standing.

Holland.—Certificate of graduation from 5-year course of Hoogere-Burger School—admission and two years of advanced standing.

India.—School leaving and matriculation certificate from standard British universities graded in Division I or II equivalent to graduation from standard high school in the United States.

Latin America.—Diploma of bachiller en ciencias y letras equivalent to graduation from standard high school in United States.

Russia.—Certificate of graduation from 8-class gymnasium prior to 1919—admission and two years advanced standing; 1919–1921—admission without advanced standing. No recognition given Russian credentials covering work after 1921 in central Russia or in Siberia after 1923.

The University of Illinois accepts the maturity certificate from European secondary schools as representing the equivalent of one or two years of college study, depending on the country, and the bachiller degree from some but not all of the Latin-American countries as being equal to graduation from a high school.

In six of the institutions the school of education is offering one or more courses in foreign and comparative education so it may, if need be, help in evaluating foreign credentials.

Almost without exception the colleges report that the foreign students do not constitute a special social problem. The attitude of the American students and of the people of the community is neither markedly favorable or unfavorable to them. They are accepted in the ordinary, normal way. The authorities report some difficulty in keeping track of the nonquota students during vacation times; otherwise the present method of dealing with those who come on the nonquota basis seems to be satisfactory.

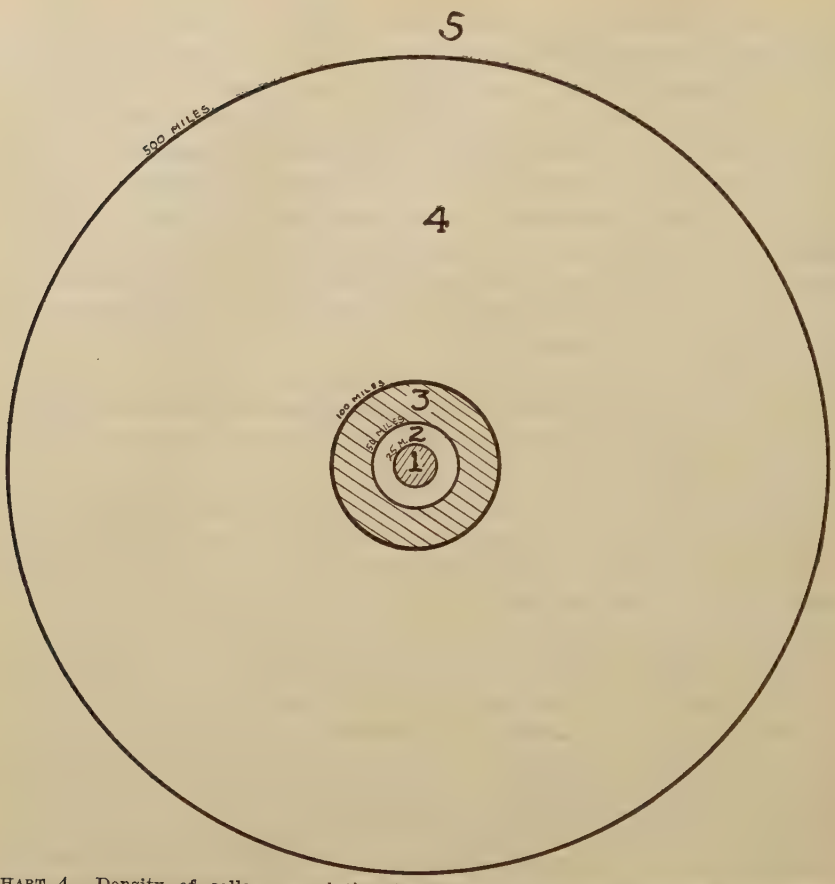

CHART 4.—Density of college population in four zones bounded by concentric circles within a radius of 25, 50, 100, and 500 miles from institution

Zone 1.—Radius 25 miles from institution; area 1,963.5 square miles or 1,256,640 acres; 29.5 per cent of undergraduates and 40.8 per cent of graduate students live in this zone.

Zone 2.—Radius 50 miles from institution; area (minus zone 1) 5,890 square miles or 3,769,600 acres; 10.1 per cent of undergraduates and 5.8 per cent of graduate students live in this zone.

Zone 3.—Radius 100 miles; area (minus zones 1 and 2) 23,562 square miles or 15,079,680 acres; 18.4 per cent of undergraduates and 8.2 per cent of graduate students live in this zone.

Zone 4.—Radius 500 miles; area (minus zones 1, 2, and 3) 753,984 square miles or 482,549,760 acres; 36.9 per cent of undergraduates and 22.3 per cent of graduate students live in this zone.

Zone 5.—Outside of 500-mile radius; 5.1 per cent of undergraduates and 22.9 per cent of graduate students come from a distance of more than 500 miles from the institution.

Density of College Population by Zones

Does the average student in a land-grant college live within commuting distance of the institution or does he come from a distance, and, if so, how great a distance? Are the land-grant institutions serving only a local need or are they enrolling students from a wide area? To study this problem effectively the land-grant institutions were asked to give their student enrollments according to the dis-

tance of students' homes from the institutions. The distances arbitrarily chosen were 25 miles, 50 miles, 100 miles, and 500 miles. The majority of institutions showed the number of students who live within these distances. To present the data clearly five zones are indicated as in Chart 4. Zone 1 is the inner circle the radius of which is 25 miles; zone 2 is the area between the two circles of the 25-mile and 50-mile radius; zone 3 is the area between circles of 50 and 100 miles radius; zone 4 is the area between circles of 100-mile and 500-mile radius; while zone 5 is everywhere beyond a 500-mile radius.

The density of college population for 43 land-grant colleges per square mile is 19.3 undergraduate students in zone 1, or 1 student to every 33 acres of land; 2.2 students in zone 2, or 1 student to every 291 acres of land; 1 undergradute student in zone 3, or 1 student to every 635 acres; 0.06 of a student per square mile in zone 4, or 1 student to every 10,170 acres; while 6,541 students come from zone 5 outside of the 500-mile radius.

Thirty-seven per cent of undergraduates come from zone 4; 30 per cent come from zone 1; 18 per cent live in zone 3; 10 per cent from zone 2; and the remaining 5 per cent come from a distance of more than 500 miles from institutions.

Graduate students.—Likewise there are 1.6 graduate students per square mile, or one from every 394 acres in zone 1; one graduate student for every 13 square miles in zone 2; one from every 37 square miles in zone 3; one from every 500 square miles in zone 4; and 1,794 come from distances of more than 500 miles from institutions.

Forty-one per cent come from zone 1; 23 per cent from zone 5, more than 500 miles away; 22 per cent from zone 4; 8 per cent from zone 3; and 6 per cent from zone 2.

The following table serves to clarify the foregoing analysis:

TABLE 24.—*Density of college population in four zones—25, 50, 100, and 500 miles from institution*

Zone	Zone area in square miles	Zone area in acres	Undergraduate students				Graduate students			
			Number in zone	Per cent in zone	Students per square mile	Number of acres represented per student	Number in zone	Per cent in zone	Students per square mile	Number of acres represented per student
1	2	3	4	5	6	7	8	9	10	11
1—(25-mile radius)	1,963.5	1,256,640	37,958	29.5	19.3	33	3,189	40.8	1.6	394
2—(26–50 miles)	5,890	3,769,600	12,945	10.1	2.2	291	456	5.8	.077	8,266
3—(51–100 miles)	23,562	15,079,680	23,735	18.4	1.0	635	643	8.2	.027	23,052
4—(101–500 miles)	753,984	482,549,760	47,450	36.9	.06	10,175	1,747	22.3	.002	276,216
5—(Outside 500-mile radius)			6,541	5.1			1,794	22.9		
Total			128,629	100.0			7,829	100.0		

For individual institutions the number of men, women, and total students in each zone are shown for comparison.

TABLE 25.—*Enrollment of undergraduate students according to distance from the institution, 1927–28*

Institution	Radius														
	25 miles			26 to 50 miles			51 to 100 miles			101 to 500 miles			More than 500 miles		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Alabama Polytechnic Institute	159	58	217	179	5	184	430	16	446	669	46	715	27	4	31
University of Arkansas			516			62			223			724			53
University of California	2,229	2,232	4,461	332	337	669	379	379	758	1,233	421	1,654	569	843	1,412
Colorado Agricultural College	288	150	438	54	18	72	180	82	262	280	76	356	55	17	72
Connecticut Agricultural College	154	60	214	70	31	101	122	64	186	15	5	20	4	0	4
University of Delaware	252	0	252	46	0	46	76	0	76	13	0	13			
University of Florida	243	10	253	95	0	95	621	0	621	1,044	0	1,044	84	0	84
Georgia State College of Agriculture	300	100	400	50	25	75	175	85	260	733	128	861	33	15	48
University of Hawaii				[2] 269	[2] 140	[2] 409	84	24	108	60	20	80	14	12	26
University of Idaho	245	168	413	116	53	169	195	96	291	557	316	873	79	7	86
University of Illinois [1]	911	662	1,573	550	242	792	1,165	404	1,569	6,042	1,913	7,955	700	149	849
Purdue University	394	229	623	264	70	334	1,185	164	1,349	1,036	142	1,178	180	9	189
Iowa State College	523	367	890	285	183	468	878	417	1,295	1,141	535	1,676	114	49	163
Kansas State Agricultural College	459	339	798	255	154	409	471	201	672	836	368	1,204	28	6	34
University of Kentucky	556	440	996	223	114	337	417	117	534	428	142	570	42	36	78
University of Maine	167	113	280	133	34	167	316	66	382	382	65	447	15	4	19
University of Maryland	362	146	508	190	39	229	155	46	201	119	16	135	23	2	25
Massachusetts Agricultural College	93	42	135	70	22	92	153	33	186	118	22	140	3	1	4
University of Minnesota	3,711	2,864	6,575	280	194	474	963	497	1,460	1,646	918	2,564	199	66	265
Mississippi Agricultural and Mechanical College	160	8	168	254	0	254	404	0	404	581	0	581	4	1	5
University of Missouri [1]	430	342	772	194	94	288	417	243	660	1,466	899	2,365	128	62	190
Montana State College	111	90	201	27	20	47	48	17	65	463	139	602	49	14	63
University of Nebraska	1,597	2,415	4,012	780	803	1,583	690	850	1,540	1,137	1,087	2,224	98	22	120
University of Nevada	205	198	403	22	24	46	47	33	80	247	108	355	36	18	54
University of New Hampshire	289	132	421	406	164	570	272	101	373	43	13	56	5	1	6

Rutgers University	583	585	1,168	442	361	803	116	49	165	57	20	77	13	10	23
Cornell University	321	201	522	142	52	194	233	106	339	2,234	730	2,964	799	95	894
North Carolina State College	136	9	145	109	0	109	353	0	353	794	0	794	55	0	55
North Dakota Agricultural College	286	217	503	83	24	107	109	48	157	315	90	405	21	4	25
Ohio State University [1]			4,140			900			2,436			3,266			480
Oklahoma Agricultural and Mechanical College	319	333	652	242	133	375	597	308	905	552	236	788	24	11	35
Oregon Agricultural College	723	281	1,004	195	107	302	704	328	1,032	658	286	944	303	161	464
Pennsylvania State College [1]	219	160	379	214	49	263	857	134	991	2,123	239	2,362	39	3	42
Rhode Island State College			95			328			83			16			2
Clemson Agricultural College	220	0	220	148	0	148	189	0	189	633	0	633	22	0	22
South Dakota State College	137	112	249	82	53	135	193	57	250	170	77	247	9	5	14
University of Tennessee	434	363	797	70	66	136	105	70	175	841	289	1,130	14	11	25
Agricultural and Mechanical College of Texas	110	0	110	64	0	64	442	0	442	1,704	0	1,704	162	0	162
Agricultural College of Utah	459	336	795	37	35	72	94	43	137	108	55	163	7	5	12
University of Vermont	143	138	281	127	103	230	113	95	208	215	113	328	31	24	55
Virginia Agricultural and Mechanical College	60	28	88	122	1	123	230	2	232	738	13	751	7	1	8
State College of Washington	232	109	341	93	41	134	385	330	715	980	606	1,586	125	18	143
West Virginia University			950			550			925			900			200
Total	18,220	14,037	[3] 37,958	7,314	3,791	[3] 12,945	14,563	5,505	[3] 23,735	32,411	10,133	[3] 47,450	4,120	1,686	[3] 6,541

[1] Includes graduate students.

[2] Includes students living within 25 miles.

[3] Includes students not separated as to sex.

TABLE 26.—*Enrollment of graduate students according to distance from the institution, 1927–28*

Institution	Radius														
	25 miles			26 to 50 miles			51 to 100 miles			101 to 500 miles			More than 500 miles		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Alabama Polytechnic Institute	15	4	19												
University of California	315	478	793	79	21	100	68	53	121	3	0	3			
Colorado Agricultural College	10	5	15	0	1	1	3	1	4	282	265	547	383	245	628
Connecticut Agricultural College	3	0	3							2	1	3	8	0	8
University of Delaware	9	0	9												
University of Florida	33	6	39	1	0	1	4	0	4	14	0	14	12	0	12
Georgia State College of Agriculture	32	16	48	19	3	22	18	4	22	10	5	15	3	4	7
University of Hawaii				[1] 16	28	44	1	0	1	2	0	2	4	4	8
University of Idaho	26	11	37	2	0	2	2	2	4	18	10	28	7	1	8
Purdue University	55	9	64	5	1	6	12	3	15	39	2	41	21	0	21
Iowa State College	193	72	265	15	12	27	62	27	89	145	82	227	116	45	161
Kansas State Agricultural College	85	41	126	1	3	4	12	8	20	22	23	45	12	5	17
University of Kentucky	58	34	92	15	10	25	8	5	13	17	10	27	9	4	13
University of Maine	12	8	20	1	1	2	2	1	3	1	1	2	4	2	6
University of Maryland	27	4	31	22	1	23	8	0	8	13	0	13	19	2	21
Massachusetts Agricultural College	34	14	48	5	2	7	12	2	14	8	0	8	10	1	11
University of Minnesota	339	227	566	29	17	46	86	28	114	233	79	312	321	35	356
Mississippi Agricultural and Mechanical College	15	0	15	2	0	2	1	0	1	2	0	2			
Montana State College	11	11	22	2	0	2				3	3	6	3	0	3
University of Nebraska	189	254	443	61	34	95	67	52	119	72	67	139	63	46	109
University of Nevada	23	38	61	1	0	1	1	0	1	0	1	1			
University of New Hampshire	9	5	14	4	1	5	1	0	1	0	0	0	2	0	2
Rutgers University	15	3	18	4	1	5	4	0	4	17	2	19	13	0	13
Cornell University	101	26	127	6	5	11	26	4	30	126	39	165	282	47	32
North Carolina State College	21	5	26	10	0	10	13	0	13	7	0	7	9	0	99

North Dakota Agricultural College	7	4	11	0	1	1	1	1	2	7	1	8			
Oklahoma Agricultural and Mechanical College	17	13	30	0	2	2	2	1	3	10	1	11	10	2	12
Oregon Agricultural College	29	19	48	2	1	3	1	2	3	8	2	10	7	1	8
Rhode Island State College	4	0	4												
South Dakota State College	12	4	16	2	0	2	2	1	3				1	0	1
University of Tennessee	26	23	49	2	0	2	1	1	2	13	5	18	1	0	1
Agricultural and Mechanical College of Texas	40	0	40				7	0	7	13	0	13	6	0	6
Agricultural College of Utah	26	7	33	0	1	1	3	0	3	3	2	5	1	0	1
University of Vermont	2	2	4	0	1	1	1	0	1	1	2	3	2	1	3
Virginia Agricultural and Mechanical College	14	4	18	1	0	1	7	0	7	32	0	32	6	0	6
State College of Washington	22	13	35	1	1	2	7	4	11	13	8	21	13	1	14
Total	1,829	1,360	3,189	308	148	456	443	200	643	1,136	611	1,747	1,348	446	1,794

[1] Includes students living within 25 miles.

Allocation of Administrative Duties in the Land-Grant Institutions

Admissions.—In 31 per cent of the institutions admissions are handled by a committee of which the registrar is usually a member; in 43.1 per cent of the institutions the registrar handles the admissions to the freshman class; in 25 per cent of the institutions admissions are in charge of some other officer, usually the dean, president, or head of the department. Admissions to advanced standing are handled by the registrar in 35.2 per cent of the institutions; by another officer in 17.6 per cent; and by a committee in 41.1 per cent. Admission to the graduate school is handled by the registrar in 15.6 per cent of the institutions; by a committee in 43.1 per cent; and by some other officer in 27.4 per cent.

Registration.—The registrar has general charge of registration procedure and preparation of blanks in 74 per cent of the institutions; in 56 per cent of the institutions another officer or committee assigns students to sections, while in 65 per cent of the institutions another officer approves the students' schedules.

Permanent records and transcripts.—In 72 per cent of the institutions the registrar has charge of the recording of grades and the sending of transcripts. Records of discipline for absences and conduct are kept by the registrar in 49 per cent of the institutions.

Reports.—In 79 per cent of the institutions the registrar has charge of reports to students, to parents, and to high-school superintendents, and of statements of honorable dismissal.

Editorial work.—The editorial work is about equally divided among the registrars, other officers, and the committees.

Minutes.—The registrar keeps the minutes of the faculty and council in about 37 per cent of the institutions; in 38 per cent of the institutions these records are kept by another officer.

Commencement.—In 50.9 per cent of the institutions the registrar checks the candidates for degrees and for honors. The registrars also prepare the diplomas in 60.7 per cent of the institutions.

Eligibility for student activities.—In about 33 per cent of the institutions the registrar checks eligibility for student activities. This work is about equally divided among the registrar, other officers, and the committees.

Statistical studies.—The registrar makes the statistical studies in about 60 per cent of the institutions. (See Table 27.)

Summary of the Calendar of Instruction

Registration period.—The average length of the registration period in 1927–28 was 1.7 days; the range was from one-half day to five days; the earliest registration date for freshmen was August 12; for

upper classmen, August 15; the latest registration date for freshmen and upper classmen was September 26. One institution had five days for registration; 1 had four and one-half; 6 had three; 19 had two; 1 had one and one-half; 20 had one day; and 1 had one-half day.

Holidays.—The average number of holidays was 18.8 days for the year; the range was 10 to 28 days. Seven institutions had 10 to 14 holidays; 18 had 15 to 19; 10 had 20 to 24; and 6 had 25 to 29.

Number of days of instruction.—The average number of days of instruction was 185.8; the range was from 162½ to 232 days. (See Table 28.)

TABLE 27.—*Number and per cent of land-grant institutions reporting allocation of administrative duties 1927–28*

Function	Registrar		Other officer		Committee		Not answering question	
	Number of institutions	Per cent	Number of institutions	Per cent	Number of institutions	Per cent	Number of institutions	Per cent
1	2	3	4	5	6	7	8	9
Admissions:								
To freshman class	22	43.1	8	15.6	18	35.2	3	5.8
To advanced standing	18	35.2	9	17.6	21	41.1	3	5.8
To graduate school	8	15.6	14	27.4	22	43.1	7	13.7
As special students	14	27.4	17	33.3	12	23.5	8	15.6
As visitors	12	23.5	14	27.4	7	13.7	18	35.2
Registration:								
General charge	36	70.5	4	7.8	8	15.6	3	5.8
Preparation of blanks	40	78.4	2	3.9	6	11.6	3	5.8
Assessment of fees	15	29.4	19	37.3	12	23.5	5	9.7
Assignment to sections	19	37.3	18	35.2	11	21.5	3	5.8
Approval of students' schedules	5	9.7	31	60.7	12	23.5	3	5.8
Changes in students' schedules	4	7.8	36	70.4	7	13.7	4	7.8
Collection of fees			45	88.2	1	1.9	5	9.7
Permanent records and transcripts:								
Recording grades	44	86.2	3	5.8	1	1.9	3	5.8
Recording absences	17	33.3	23	45.0	1	1.9	10	19.4
Recording extension grades	29	56.8	5	9.7	2	3.9	15	29.4
Recording discipline for absences	24	47.0	16	31.2	2	3.9	9	17.6
Recording discipline for conduct	27	52.9	14	27.4	7	13.7	3	5.8
Transcripts	42	82.3	3	5.8	1	1.9	5	9.7
Reports:								
Grades to students	42	82.3	4	7.8	2	3.9	3	5.8
Grades to parents	40	78.4	3	5.8	4	7.8	4	7.8
Grades to high school superintendents	41	80.3	4	7.8	2	3.9	4	7.8
Statement of honorable dismissal	40	78.4	7	13.7	1	1.9	3	5.8
Correspondence with prospective students	29	56.8	9	17.6	10	19.6	3	5.8
Advertising	4	7.8	15	29.4	11	21.5	21	41.1
Editorial work:								
Catalogue	10	19.4	18	35.2	20	39.2	3	5.8
Student directory	28	54.9	13	25.4	4	7.8	6	11.6
Circulars and bulletins	7	13.7	19	37.3	16	31.3	9	17.6
Schedule of lectures and recitations	20	39.2	7	13.7	19	37.3	5	9.7
Examination schedule	25	49	4	7.8	17	33.3	5	9.7
Minutes of faculty	21	41.1	24	47.0	3	5.8	3	5.8
Minutes of discipline committee	8	15.6	21	41.1	13	25.4	9	17.6
Minutes of university council	17	33.3	15	29.4	3	5.8	16	31.2
Commencement:								
Checking candidates for degrees	26	50.9	5	9.7	17	33.3	3	5.8
Checking honors	25	49	6	11.6	10	19.6	10	19.6
Preparation of commencement program	18	35.2	13	25.4	17	33.3	3	5.8
Preparation of diplomas	31	60.7	12	23.5	4	78	4	7.8
Recommendation of candidates for degrees to faculty and board	15	29.4	13	25.4	20	39.2	3	5.8
Commencement procedure	2	3.9	15	29.4	30	58.8	4	7.8

TABLE 27.—*Number and per cent of land-grant institutions reporting allocation of administrative duties 1927–28*—Continued

Function	Registrar		Other officer		Committee		Not answering question	
	Number of institutions	Per cent	Number of institutions	Per cent	Number of institutions	Per cent	Number of institutions	Per cent
1	2	3	4	5	6	7	8	9
Assignment of rooms:								
Recitation	15	29.4	18	35.2	14	27.4	4	7.8
Laboratory	10	19.4	23	45.0	14	27.4	4	7.8
Offices	2	3.9	35	68.6	7	13.7	7	13.7
General discipline			21	41.1	19	37.2	11	21.5
Eligibility for student activities:								
Membership in fraternities	14	27.4	11	21.5	13	25.4	13	25.4
Athletics	18	35.2	12	23.5	17	33.3	4	7.8
Debates and dramatics	12	23.5	17	33.3	16	31.2	6	11.6
Other activities	13	25.4	18	35.2	13	25.4	7	13.7
Statistical studies:								
Enrollment	40	78.4	4	7.8	3	5.8	4	7.8
Student clock hour load	26	50.9	11	21.5	3	5.8	11	21.5
Teaching load	23	45.0	17	33.3	4	7.8	7	13.7
Degrees	37	72.5	4	7.8	3	5.8	7	13.7
Other studies	27	52.9	5	9.7	8	15.6	11	21.5
Alumni records	4	7.8	37	72.5	3	5.8	7	13.7

TABLE 28.—*Calendar of instruction, including registration period, closing date, recess periods, number of days of instruction, and number of days and terms of the summer session*

Institution	Registration period			Closing date	Recess period (number of days)				Number of days of instruction				Summer session	
	Opening date		Number of days	Second semester or quarter	Thanksgiving	Christmas	Easter	Total	Semester or term				Number of days of instruction	Number of terms
	Freshmen	Upper classmen							First	Second	Third	Total		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Alabama Polytechnic Institute	Sept. 10	Sept. 12	2	May 22									60	2
Alaska Agricultural College and School of Mines	Sept. 9	Sept. 9	2	June 6	4	10	1	15						
University of Arizona	Sept. 12	Sept. 13	1	May 24					93	95		188	63	2
University of Arkansas	Sept. 15	Sept. 16	1	May 4		14	4	18	94	98		192	33	1
University of California	Aug. 12	Aug. 15	1	May 16		20	8	28	91	92		183	56	2
Colorado Agricultural College	Sept. 6	Sept. 6	2	June 7					81	87		168	52	2
Connecticut Agricultural College	Sept. 16	Sept. 16	2	June 9	3½	14	7	24½	126	106		232		
University of Delaware	Sept. 22	Sept. 26	1	June 11	5	12	7	24	92	93		185	34	1
University of Florida	Sept. 12	Sept. 12	3	May 29		17		17	91	96		187	42	1
Georgia State College of Agriculture	do	Sept. 17	3	June 20					73	68	60	201	34	1
University of Hawaii	Sept. 13	Sept. 13	1	June 4					95	96		191	33	1
University of Idaho	Sept. 16	Sept. 16	2	June 11	4	17	4	25	99	98		197	29	1
University of Illinois	do	Sept. 19	2	June 12	5	13	5	23	94	90		184	44	1
Purdue University	Sept. 12	Sept. 12	3	do		14		14	99	97		196	49	1
Iowa State College	Sept. 26	Sept. 27	1½	June 11		10½	4½	15	74½	58½	62½	195½	58½	2
Kansas State Agricultural College	Sept. 12	Sept. 12	2	May 31	3½	12	3	18½	94½	90		184½	75	2
University of Kentucky	Sept. 15	Sept. 19	2	June 2		13	5	18	86	93		179	57	2
Louisiana State University	Sept. 21	Sept. 21	2	June 11		10		10	74	66	66	206	64	1
University of Maine	Sept. 13	Sept. 20	1	do		16	9	25	92	89		181	27	1
University of Maryland	Sept. 19	Sept. 21	1	June 2	4	12½	5½	22	84	87		171	30	1
Massachusetts Agricultural College	Sept. 12	Sept. 14	1	June 11		16	8	24	71	58	58	187	33	1
Massachusetts Institute of Technology	Sept. 26	Sept. 26	1	June 5		11	5	16	90	90		180	72	2
Michigan State College	Sept. 14	Sept. 19	1	June 18		17	9	26	56½	52	54	162½	50	2
University of Minnesota	Sept. 16	do	5	June 11		17	8	25	66	59	61	186	65	1
Mississippi Agricultural and Mechanical College	Sept. 21	Sept. 21	2	June 4	1	11		12	99	99		198		

TABLE 28.—*Calendar of instruction, including registration period, closing date, recess periods, number of days of instruction, and number of days and terms of the summer session*—Continued

Institution	Registration period			Closing date	Recess period (number of days)				Number of days of instruction				Summer session	
	Opening date		Number of days	Second semester or quarter	Thanksgiving	Christmas	Easter	Total	Semester or term				Number of days of instruction	Number of terms
	Freshmen	Upper classmen							First	Second	Third	Total		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
University of Missouri	Sept. 13	Sept. 14	2	June 6									37	1
Montana State College	Sept. 21	Sept. 23	2	do		17		17	63	61	58	182		
University of Nebraska	Sept. 12	Sept. 12	3	June 2	2½	10	3	15½	93	99		192	66	2
University of Nevada	Aug. 22	Aug. 22		May 14					94	97½		191½	37	1
University of New Hampshire	Sept. 17	Sept. 19	1	June 18		15	9	24	64	58½	53	175½	34	1
Rutgers University	Sept. 19	Sept. 22	1	June 9								178	30	1
Cornell University	Sept. 26	Sept. 26	3	June 18		12	6	18	101½	103½		205	30	1
North Carolina State College	Sept. 16	Sept. 20	1	June 5		11	4	15	71	54	58	183	32	1
North Dakota Agricultural College	Sept. 23	Sept. 23	2	June 11		16	1	17	64	64	66	194	26	1
Ohio State University	(1)	(1)		June 12		10	8	18	62½	55	55	172½	50	1
Oklahoma Agricultural and Mechanical College	Sept. 12	Sept. 12	3	May 24		10	4	14	99	94		193	41	1
Oregon Agricultural College	Sept. 23	Sept. 24	1	June 4		13	3	16	54	51	48	153	28	1
Pennsylvania State College	Sept. 8	Sept. 12	2	June 12	3	14	6	23					30	1
Rhode Island State College	Sept. 20	Sept. 22	1	June 18					89½	83½		173		
Clemson Agricultural College	Sept. 13	Sept. 14	½	June 5					101	99		200	32	1
South Dakota State College	Sept. 19	Sept. 21	1	June 11		12	4	16	75	67	63	205	32	1
University of Tennessee	Sept. 21	Sept. 26	2	June 6		11		11	64	61	59	184	58	2
Agricultural and Mechanical College of Texas	do	Sept. 22	1	June 5		14	4	18	90	90		180	70	2
Agricultural College of Utah	Sept. 24	Sept. 26	1	June 2	4	10		14	70	70	59	199	64	2
University of Vermont	Sept. 13	Sept. 14	2	June 18		11	8	19	90	90		180	30	1
Virginia Agricultural and Mechanical College	Sept. 20	Sept. 21	2	June 12		11		11	72	66	60	198	57	2
State College of Washington	Sept. 21	do	2	June 11	3	13½	3	19½	91½	96		187½	42	1
West Virginia University	Sept. 17	Sept. 17	2	June 5	3	11	6	20	92	95		187	56	2
University of Wisconsin	Sept. 15	Sept. 15	4½	June 18		14½	7	21½	84	86		170	29	1
University of Wyoming	Sept. 19	Sept. 20	1	June 5		12	10	22	57	48	48	153	52	2

[1] Register by mail from Aug. 1 to opening of University.

Part V.—Alumni and Former Students

Thirty-seven thousand three hundred and forty-two alumni and other former students of the land-grant institutions contributed to this study by making reports upon a questionnaire form prepared for the purpose. These former students matriculated in 48 institutions during four periods, each of three academic years, 1889–1892, 1899–1902, 1909–1912, and 1919–1922. Matriculation records for these periods were furnished by the institutions participating in the study with two exceptions, Ohio State University and Oklahoma Agricultural and Mechanical College. The total number of matriculants reported was 103,712. Distribution by years, number of institutions, and of those to whom the questionnaire was sent is shown in Table 1.

TABLE 1.—*Distribution of matriculants*

Period	Number of institutions reporting	Number of matriculants	Number to whom questionnaire was sent	Per cent of matriculants to whom questionnaire was sent
1	2	3	4	5
1889–1892	33	7,467	4,262	57.1
1899–1902	42	14,662	9,338	63.7
1909–1912	45	26,662	19,135	71.7
1919–1922	45	54,921	44,050	80.2
Total		103,712	76,785	74

Of the 76,785 questionnaires sent to matriculants, 7,344 could not be delivered by the Postal Service, thus leaving 69,441 that presumably reached the persons to whom they were addressed. Reports were received from 33,723, or 48.5 per cent, of the matriculants who probably received the questionnaire. In addition 3,619 reports were received from former students of Ohio State University and Oklahoma Agricultural and Mechanical College, making a total of 37,342 cases for study.

Inasmuch as it has been possible to present only a small part of the information secured by means of the questionnaire, students who desire to carry the study further upon the basis of the original data may be interested to know that the questionnaires on file in the United States Office of Education contain information on the following items: State or county from which registered, year of matriculation, degree received, number of years in college if not a graduate, major division of registration, field of specialization, present residence, age at entrance to college, sex, marital status, number of children in school or graduated, nativity of father and mother, size of community in

which reared, graduate and extension work, degree to which self-supporting in college, and method of securing such support, fellowships and scholarships, fraternity membership, student extracurricular activities, time and reason for choice of field of work, present occupation, ownership in business, how capital secured, annual earnings by years since leaving college, successive positions occupied, activities outside of occupation, reasons for leaving college if a non-graduate.

Distribution of the former students to whom the questionnaire was sent by major divisions of registration and by graduates and non-graduates in the major division of first registration is shown by Table 2.

TABLE 2.—*Distribution of matriculants to whom questionnaire was sent*

Division	1889–1892		1899–1902		1909–1912		1919–1922	
	Graduates	Nongraduates	Graduates	Nongraduates	Graduates	Nongraduates	Graduates	Nongraduates
1	2	3	4	5	6	7	8	9
Arts and sciences	794	836	1,225	878	1,776	1,776	4,204	8,164
Agriculture	250	289	521	862	3,051	2,022	4,508	4,184
Engineering	971	830	2,707	2,337	4,355	3,679	7,329	8,297
Home economics	59	44	137	161	694	499	1,645	1,901
Industrial education			0	1	17	1	4	0
Education	2	26	1	5	77	97	308	341
Pharmacy			81	36	121	42	229	186
Chemistry	4	1	40	19	96	66	143	207
Veterinary medicine	11	9	58	56	174	45	196	112
Commerce and business	0	2	16	0	16	29	351	491
Forestry			5	1	113	111	103	186
Music and fine arts			1	1	9	20	29	102
Architecture	25	23	13	5	65	57	90	152
Journalism					1	0	6	13
Textiles			30	23	31	16	116	103
Industrial science	15	71	35	83	38	41	118	229
Law							0	3
Total	2,131	2,131	4,870	4,468	10,634	8,501	19,379	24,671

This report selected for special study the former students who specialized in five major fields—agriculture, engineering, home economics, arts and sciences, and education. Table 3 shows the number of cases reported in each of these fields.

TABLE 3.—*Reports available for study in five major fields*

Field of matriculation	Number of graduates	Number of nongraduates	Total
1	2	3	4
Agriculture	5,269	1,960	7,229
Engineering	10,104	5,612	15,716
Home economics [1]	1,668	755	2,423
Arts and sciences	4,811	4,578	9,389
Education	307	177	484
Total	22,159	13,082	35,241

[1] Includes those registered in major divisions of home economics, arts and sciences, and agriculture who specialized in home economics.

Further analysis of the number of reports received from engineering, arts and sciences, and teacher-training matriculants showing the areas of specialization within each of these fields is presented by Tables 4, 5, and 6.

TABLE 4.—*Distribution of students by fields of college specialization, from reports by students in engineering*

Engineering group	Total returns in engineering	Returns from engineering students specializing in—														
		Field of specialization not indicated	Civil engineering	Electrical engineering	Mechanical engineering	Chemical engineering	Industrial and commercial engineering	Mining engineering	Architectural engineering	Aeronautical engineering	Textile engineering	Agricultural engineering	Marine engineering	Engineering administration	Miscellaneous engineering	Other nonengineering subjects
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Graduates	10,104	3,236	2,546	2,817	2,262	470	116	381	82	5	10	46	27	49	356	614
Ex-students	5,612	684	1,378	1,134	1,014	221	22	181	45	3	7	17	5	14	279	608
Total	15,716	1,007	3,924	3,951	3,276	691	138	562	127	8	17	63	32	63	635	1,222

TABLE 5.—*Distribution of students, by major fields of college specialization, from reports by arts and science students*

Group	Total number of cases	Major field of specialization																
		No reply	Engineering	Agriculture	Home economics [1]	Chemistry	Teacher training	Social science	Other science	Veterinary medicine	Language	Forestry	Commerce and business	Architecture	Pharmacy	Textile	Preprofessional	Music	Unclassified
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Graduates	4,811	294	96	99	0	307	231	1,288	573	3	934	7	165	5	35	1	266	42	465
Ex-students	4,578	987	148	67	0	166	118	977	277	3	599	6	316	15	13	0	437	58	391
Total	9,389	1,281	244	166	0	473	349	2,265	850	6	1,533	13	481	20	48	1	703	100	856

[1] All arts and science students who specialized in home economics are included in the home economics tabulations and are omitted from the arts and science tabluations.

Teacher-training tabulations are divided into two groups, those who registered in the major division or school of education, and those who registered in arts and sciences but who are now employed in the field of education. For convenience in securing comparable data for these two groups, they appear in teacher-training tabulations under the headings "Education" and "Arts and Sciences." When "Education" appears it means only those who registered in the major division of education. It must be borne in mind that arts and science cases that appear in teacher-training tables refer only to those who are at present in educational work. These cases are also included in the tables that deal with the entire body of arts and science students.

TABLE 6.—*Distribution of students by fields of college specialization from reports by teacher-training students*

Group	Total number of cases	Major field of specialization						
		No reply	Teacher training in home economics	Teacher training in vocational agriculture	Teacher training in other vocational subjects	Physical education	Other teacher training	All other fields not teacher training
1	2	3	4	5	6	7	8	9
Graduates:								
Education	307	18	10	24	3	8	35	209
Arts and sciences	1,160	34	4	1	3	18	57	1,043
No reply to number of years ex-student was enrolled:								
Education	26	8	0	1	0	3	4	10
Arts and sciences	51	7	0	1	0	1	1	41
1 year or less:								
Education	68	18	3	4	1	2	13	27
Arts and sciences	156	33	2	0	0	2	8	111
More than 1 year to 2 years:								
Education	52	15	3	1	0	1	10	22
Arts and sciences	251	35	3	0	0	4	14	195
More than 2 years:								
Education	31	5	0	2	0	3	1	20
Arts and sciences	101	11	0	0	0	2	4	84
Total	2,203	184	25	34	7	44	147	1,762

From the above table, we find that of the 1,160 graduates and 559 ex-students in arts and sciences who are now in the field of education, 1,043 graduates, or 89.89 per cent and 431 ex-students, or 77.10 per cent, specialized in subjects other than teacher training in college. Of the 307 graduates and 177 ex-students registered in the major division of education, 209 graduates, or 68.07 per cent, and 79 ex-students, or 44.63 per cent, specialized in fields other than teacher training.

In so far as is practicable the tables derived from analysis of data furnished in regard to the five fields selected for special study are presented in a form to facilitate comparison among the field and as between graduates and nongraduates. Attention is called to the fact that "graduates" means in every case graduates in the division in which the students originally matriculated. If the student later transferred to another major division, his case is recorded as a nongraduate. "Nongraduates" does not mean, therefore, that the

student failed to receive a degree from the institution; it means that he failed to complete his work in the major division of first registration. His further work in the institution after such transfer and whether it led to a degree is recorded by Table 13. Of the total number of 13,082 nongraduates, 8,327 originally registered in these three divisions but failed to complete their work for degrees in these fields. Of the 8,327 only 937 received degrees from other major divisions in the same institution.

Age at college entrance is quite frequently considered with reference to the entire body of matriculants, although it would seem probable that social and intellectual differences that characterize students who choose different types of college study should result in some differences in age as between these groups. Tables 7 and 8 were prepared, therefore, in order to determine the actual ages at entrance of those who complete their courses and of those who do not do so for each of the five lines of specialization selected for study.

TABLE 7.—*Number and percentage of total graduates for each age at entrance to college according to major divisions*

Major division	Total number of cases	Age at entrance to college																			
		No reply		Under 15		15		16		17		18		19		20		21		Over 21	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Agriculture	5,269	32	0.60	10	0.18	32	0.60	202	3.83	547	10.38	1,149	21.80	1,161	22.03	774	14.68	471	9.00	891	16.90
Engineering	10,104	54	.53	16	.15	74	.73	389	3.84	1,448	14.33	2,838	28.03	2,376	23.51	1,255	12.42	754	7.46	900	9.00
Home economics	1,668	21	1.25	5	.29	23	1.37	67	4.01	235	14.08	554	33.21	392	23.50	147	8.87	97	5.81	127	7.61
Arts and sciences	4,811	48	.90	17	.35	59	1.22	248	5.15	765	15.97	1,510	31.38	1,024	21.28	478	10.00	271	5.63	391	8.12
Education	307	3	.97	0	0.0	2	.65	21	6.88	40	13.02	80	26.05	42	13.68	31	10.09	32	10.42	56	18.24
Total	22,159	158	.71	48	.21	190	.90	927	4.18	3,035	13.69	6,131	27.66	4,995	22.54	2,685	12.11	1,625	7.33	2,365	10.67

TABLE 8.—*Number and percentage of total nongraduates for each age at entrance to college according to major divisions*

Major division	Total number of cases	Age at entrance to college																			
		No reply		Under 15		15		16		17		18		19		20		21		Over 21	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Agriculture	1,960	25	1.27	8	0.40	13	0.66	57	2.90	198	10.15	423	21.58	484	24.69	320	16.32	194	9.89	238	12.14
Engineering	5,612	59	1.05	12	.21	30	.53	155	2.76	632	11.26	1,449	25.81	1,416	25.23	839	14.99	510	9.08	510	9.08
Home economics	755	9	1.19	2	.26	7	.92	26	3.57	87	11.52	219	29.00	186	24.63	95	12.58	49	6.40	75	9.93
Arts and sciences	4,578	55	1.20	16	.34	26	.58	156	3.40	587	12.82	1,237	27.02	1,084	23.69	607	13.25	378	8.27	432	9.43
Education	177	7	3.95	1	.56	0	0.0	2	1.13	18	10.16	48	27.11	23	13.00	26	14.70	14	7.92	38	21.47
Total	13,082	155	1.18	39	.30	76	.58	396	3.03	1,522	11.64	3,376	25.81	3,193	24.41	1,887	14.42	1,145	8.75	1,293	9.88

Even cursory inspection of these tables reveals some interesting facts. Although in all divisions the number that enter college under 16 years of age is small, more of those who graduated in home economics and arts and sciences (1.66 per cent and 1.57 per cent, respectively) matriculated when less than 16 years of age than in any other division. In all divisions except agriculture the largest percentage enrolled at 18 years of age; in agriculture the largest percentage entered at 19. Further, enrollment in agriculture is more evenly distributed over the ages from 18 to 21 than in any other division. Education shows the largest percentage entering at over 21 years of age (18.24 per cent) although agriculture is a close second (16.9 per cent). It is interesting also to note that a larger percentage of education students enter when more than 21 years old than at any age from 19 to 21, inclusive.

Comparison of the graduate and nongraduate groups as a whole shows that nongraduates tend to enter college at later ages than those who graduate; the percentages of nongraduates entering at all ages below 19 are uniformly smaller than in the case of graduates, while from 19 to 21, inclusive, the percentages are consistently higher. This does not seem to be due to the influence of older entrants in any single division; the distribution of the excess age in the nongraduate group is fairly regular for all fields of specialization when compared with graduates in the same division.

The tradition of the superior ambition and ability of the country boy is strong in American education. It is interesting, therefore, to compare the number of students who matriculated in the various schools and colleges with reference to the size of the communities in which they were reared. Tables 9 and 10 give these data for 22,159 graduates and 13,082 nongraduates.

TABLE 9.—*Nature and size of communities in which graduates were reared*

Major division	Total number of cases	No reply to farm rearing		Farm reared		Size of community of those not farm reared									
						No reply to size of community		Fewer than 2,500 population		2,500 to 10,000 population		10,000 to 50,000 population		More than 50,000 population	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Agriculture	5,269	22	0.42	3,199	60.71	35	0.66	513	9.74	445	8.44	376	7.14	679	12.89
Engineering	10,104	44	.43	2,434	24.09	120	1.19	1,576	15.60	1,749	17.31	1,634	16.17	2,547	25.21
Home economics	1,668	18	1.08	636	38.13	30	1.80	259	15.53	282	16.91	168	10.07	275	16.48
Arts and sciences	4,811	(1)	--------	1,210	25.15	(1)	--------	856	17.79	812	16.88	751	15.61	1,182	24.57
Education	307	(1)	--------	130	42.35	(1)	--------	60	19.54	29	9.45	18	5.86	70	22.80
Total	22,159	84	.38	7,609	34.34	185	.83	3,264	14.73	3,317	14.97	2,947	13.30	4,753	21.45

[1] The figures given for "farm reared" include a few "no replies."

TABLE 10.—*Nature and size of community in which nongraduates were reared*

Major division	Total number of cases	No reply to farm rearing		Farm reared		Not farm reared									
						No reply to size of community		Fewer than 2,500 population		2,500 to 10,000 population		10,000 to 50,000 population		More than 50,000 population	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Agriculture	1,960	14	0.71	1,064	54.29	14	0.71	215	10.97	190	9.69	180	9.19	283	14.44
Engineering	5,612	35	.62	1,331	23.72	69	1.23	983	17.52	1,059	18.87	879	15.66	1,256	22.38
Home economics	755	12	1.59	267	35.36	8	1.06	139	18.41	123	16.29	92	12.19	114	15.10
Arts and sciences	4,578	(1)	--------	982	21.45	(1)	--------	867	18.94	845	18.46	617	13.48	1,267	27.67
Education	177	(1)	--------	69	38.99	(1)	--------	33	18.64	24	13.56	18	10.17	33	18.64
Total	13,082	61	.47	3,713	28.38	91	.70	2,237	17.10	2,241	17.13	1,786	13.65	2,953	22.57

[1] The figures for "farm reared" include a few "no replies."

It will be noted that of the entire group of graduates 34.34 per cent were farm reared, only slightly less than the per cent (34.75 per cent) reared in communities of more that 10,000 population. The proportion that is farm reared is of course considerable weighted for the land-grant institutions as compared with what would be found in other types of institutions by the fact that the land-grant colleges all offer courses in agriculture. The influence of the agricultural division is evident from the fact that 60 per cent of the matriculants in this division were farm reared. It is interesting that the next highest percentage of farm reared matriculants (42.35 per cent) is found in the education group.

Of the total number of nongraduates a slightly larger per cent than of graduates (36.22 per cent as compared with 34.75 per cent) was reared in communities of more that 10,000 population and a considerably smaller per cent (28.38 per cent as compared with 34.34 per cent) was farm reared. Part of this difference is due to the fact that only 54.29 per cent of those who failed to complete their college work in the division of agriculture were farm reared, while 60.71 per cent of those who were graduates in agriculture came from farm homes. If to matriculants in agriculture who were farm reared be added those who were raised in communities of fewer than 2,500 population, the percentage of nongraduates who came from these sources (65.26 per cent) is less than the percentage of graduates (70.45 per cent) who came from similar communities.

As is to be expected engineering matriculants come in large part from communities of more than 10,000 population—41.38 per cent of the graduates and 38.04 per cent of the nongraduates. More of the engineering graduates (25.21 per cent) come from communities of more than 50,000 population than is the case in any other division. However, almost as large a per cent (39.69) come from the farms and from communities of fewer than 2,500 as come from communities of more than 10,000 (41.38). On the other hand 41.24 per cent of the engineering matriculants who failed to graduate came from farms and communities of fewer than 2,500 as compared with 38.04 who were reared in communities of 10,000 or more.

Of the matriculants in agriculture who were not farm reared 1,412 graduates report some farm experience while only 636 report no such experience; of the nongraduates 525 report farm experience and 357 report no such exprience. Of home economics matriculants who were not farm reared 182 graduates and 72 nongraduates report farm experience while 832 graduates and 404 nongraduates report no such experience.

Since arts and science students so frequently go into teaching, the arts and science students who are now in teaching were separated

from the arts and science group as a whole and Table 11 shows for these students the size of communities in which they were reared. It is interesting to note that a much smaller percentage of these matriculants, both graduates and nongraduates, came from farms than is the case of matriculants in education.

TABLE 11.—*Nature and size of community in which arts and science matriculants now in teacher training were reared*

Arts and science matriculants now in teacher training	Total number of cases	Farm reared [1]		Size of community of those not farm reared							
				Fewer than 2,500 population		2,500 to 10,000 population		10,000 to 50,000 population		More than 50,000 population	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12
Graduates	1,160	327	28.19	213	18.36	202	17.41	167	14.40	251	21.64
Nongraduates	559	120	21.46	116	20.75	102	18.25	63	11.27	158	28.27
Total	1,719	447	26.00	329	19.13	304	17.69	230	13.39	409	23.79

[1] The figures for "farm reared" include a number of "no reply" cases.

Tables 12, 13, and 14 present data in regard to graduate work of those who obtained their undergraduate degrees in the division of first matriculation and in regard to the further work of those who failed to complete undergraduate work in the division of their first choice. This information is given in both cases for further work in the institution of orginal matriculation and in other institutions. Since many, after dropping work in the division in which they first matriculated, may have pursued further work both in their original institution and in others, the same individual may be listed twice in the tables.

TABLE 12.—*Further work and degrees of graduates*

Major division	Total number of cases	No further work [1]		In same institution										In other institutions									
				Graduate work without degree						Highest degree				Graduate work without degree						Highest degree			
				1 year or less	1 to 2 years	2 to 3 years	More than 3 years	Total graduate work		Master's		Ph. D.		1 year or less	1 to 2 years	2 to 3 years	More than 3 years	Total graduate work		Master's		Ph. D.	
		Number	Per cent					Number	Per cent	Number	Per cent	Number	Per cent					Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Agriculture	5,269	2,317	40.55	523	86	23	19	651	12.35	408	7.74	52	0.98	392	84	20	11	507	9.62	447	8.48	107	2.03
Engineering	10,104	5,171	51.17	347	84	29	25	4.85	4.80	436	4.31	21	.20	366	115	42	16	539	5.33	257	2.54	47	.46
Home economics	1,668	676	40.52	176	19	1	3	199	11.93	40	2.39	2	.11	271	27	2	0	300	17.98	53	3.17	3	.17
Arts and science	4,811	3,582	74.45	480	93	27	18	618	12.84	552	11.47	45	.93	463	109	47	31	650	13.51	485	10.08	94	1.95
Education	307	191	62.20	74	6	0	3	83	27.03	33	10.70	0	.00	50	4	2	0	56	18.24	18	5.86	1	.32
Total	22,159	11,757	53.05	1,600	288	80	68	2,036	9.18	1,469	6.62	120	.99	1,542	339	113	58	2,052	9.26	1,260	9.92	252	1.13

[1] Included in this number are those who did not furnish information on the specific points covered by the table.

TABLE 13.—*Further work and degrees of nongraduates*

Major division	Total number of cases	No further work [1]		In same institution								In other institutions							
				Undergraduate work without degree						Degree		Undergraduate work without degree						Degree	
		Number	Per cent	1 year or less	1 to 2 years	2 to 3 years	More than 3 years	Total undergraduate work				1 year or less	1 to 2 years	2 to 3 years	More than 3 years	Total undergraduate work			
								Number	Per cent	Number	Per cent					Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Agriculture	1,960	(2)		61	39	26	16	142	7.24	174	8.87	124	88	39	22	273	13.92	200	10.20
Engineering	5,612	1,692	30.14	117	120	103	65	405	7.21	674	12.00	372	239	164	78	853	15.19	461	8.21
Home economics	755	215	28.47	25	28	13	2	68	9.00	89	11.78	106	72	25	8	211	27.94	52	6.88
Total	8,327	1,907	22.90	203	187	142	83	615	7.38	937	11.25	602	399	228	108	1,337	16.05	713	8.56

[1] Included in this number are those who did not furnish information on the specific points covered by the table.
[2] Figures not available.

TABLE 14.—*Further work and degrees of arts and science matriculants now engaged in teaching*

Total number of arts and science matriculants now in teaching	No further work [1]		In same institution										In other institutions									
			Graduate work without degree						Highest degree				Graduate work without degree						Highest degree			
	Number	Per cent	1 year or less	1 to 2 years	2 to 3 years	More than 3 years	Total graduate work		Master's		Ph. D.		1 year or less	1 to 2 years	2 to 3 years	More than 3 years	Total graduate work		Master's		Ph. D.	
							Number	Per cent	Number	Per cent	Number	Per cent					Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1,160	667	57.5	218	39	9	4	270	23.27	173	14.91	21	1.81	226	36	10	4	276	23.79	156	13.4	61	5.25

[1] The table does not indicate the number who failed to furnish information on the specific points covered by the table.

Slightly more than 9 per cent of the total number of those who completed undergraduate work in the divisions of their first registration continued with graduate work in the same institutions. More than twice as large a per cent of those in education did this as in any other division, but in all divisions except engineering the per cent that continued graduate work in their own institutions was greater than the per cent of the entire group that did so.

The lower general per cent is entirely due to the fact that only 4.8 per cent of the engineers continued their work upon the graduate level in the same institution. A smaller per cent of the engineers than of any other group is also found with graduate work in other institutions.

It should be noted that while only 11.93 per cent of the home economics graduates continued graduate work in their own institutions, 17.98 per cent of home-economics graduates have done graduate work in other institutions, a larger proportion than in any division except education, which had 18.24 per cent with graduate work in other institutions. However, a smaller percentage of home-economics graduates obtained masters' degrees in their own institution than was the case in any other field, even engineering obtaining a larger percentage of masters, although only 4.8 per cent of engineers did graduate work as compared with 11.93 per cent of home-economics graduates. It is perhaps significant also that while 17.98 per cent of home-economics graduates have done some graduate work in other institutions only 3.17 per cent of the total number of home-economics students obtained masters' degrees as a result of this work.

Larger percentages of agricultural and home economics graduates obtain masters' degrees in other institutions than in the institutions in which they did their undergraduate work, while the reverse is true for engineering, arts and sciences, and education.

It is interesting to discover that a larger proportion of arts and science graduates who are now teaching obtain masters' and doctors' degrees than is the case of any other group. This group constitutes the largest element of arts and science students that obtain graduate degrees.

Attention has already been called to the fact that only 11.25 per cent of the students in agriculture, engineering, and home economics who fail to complete their undergraduate work in the division of original registration finally obtain undergraduate degrees in the same institution. There is little significant difference between these divisions in this respect, although the smallest proportion of those who drop out of agriculture (8.87 per cent) obtain degrees in other fields in their original institution. However, a larger proportion of

such drop-outs in agriculture than in any other field (10.2 per cent) complete undergraduate work in other institutions. It is perhaps worthy of consideration that, except in agriculture, a smaller per cent of these students who change their minds and their courses after matriculation finally obtain undergraduate degrees elsewhere than in their own institutions.

In connection with further work of graduates and nongraduates it is interesting to find that 14.06 per cent and 19.63 per cent, respectively, of these two groups have had class extension or correspondence courses. The data in regard to work of this kind is presented by Table 15 for agriculture, engineering, and home economics.

TABLE 15.—*Number of former students who have had class extension or correspondence courses*

Major division	Graduates			Nongraduates		
	Total number of cases	Number who have had class extension or correspondence courses	Per cent	Total number of cases	Number who have had class extension or correspondence courses	Per cent
1	2	3	4	5	6	7
Agriculture	5,269	747	14.17	1,960	342	17.44
Engineering	10,104	1,392	13.77	5,612	1,138	20.25
Home economics	1,668	257	15.40	755	155	20.52
Total	17,041	2,396	14.06	8,327	1,635	19.63

It is one of the contentions of land-grant institutions that they provide educational opportunities for the less well to do and for the specially ambitious and energetic of this class. Information in regard to the number and proportion of the graduates and ex-students who in college earned none of their own way as compared with those who were in part at least self-supporting may have some bearing. Tables 16, 17, and 18 give this information for graduates and nongraduates in each of five major divisions and for arts and science matriculants who are now engaged in teaching. The original data from which these tables were derived showed percentages of self-help in detail but are not presented because of limitations of space.

TABLE 16.—*Self-help of graduates*

Major division	Total number of cases	No reply to question of self-support		Not self-supporting		Self-supporting in whole or in part	
		Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8
Agriculture	5,269	85	1.61	695	13.19	4,489	85.20
Engineering	10,104	90	.89	2,195	21.72	7,819	77.39
Home economics	1,668	52	3.12	780	46.76	836	50.12
Arts and sciences	4,811	74	1.53	1,785	37.11	2,952	61.36
Education	307	5	1.62	85	27.69	217	70.69
Total	22,159	306	1.38	5,540	25.01	16,313	73.61

TABLE 17.—*Self-help of nongraduates*

Major division	Total number of cases	No reply to question of self-support		Not self-supporting		Self-supporting in whole or in part	
		Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8
Agriculture	1,960	75	3.82	494	25.21	1,391	70.97
Engineering	5,612	126	2.25	1,601	28.52	3,885	69.23
Home economics	755	34	4.51	368	48.74	353	46.75
Arts and sciences	4,578	103	2.25	1,581	34.53	2,894	63.22
Education	177	8	4.52	53	29.95	116	65.53
Total	13,082	346	2.65	4,097	31.32	8,639	66.03

TABLE 18.—*Self-help of arts and science matriculants who are now engaged in teaching*

Arts and science matriculants now in teaching	Total number of cases	No reply to question of self-support		Not self-supporting		Self-supporting in whole or in part	
		Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8
Graduates	1,160	17	1.46	425	36.64	718	61.90
Nongraduates	559	18	3.22	173	30.95	368	65.83
Total	1,719	35	2.03	598	34.79	1,086	63.18

As was to be expected a smaller percentage of home economics students earned part of their way than was the case in any other division. The opportunities for women are fewer than is the case for men. It may be due also to the large number of women who register in arts and sciences that the proportion of self-help students in arts and sciences is next to home economics in low ranking in this respect. A larger proportion of agricultural students are self-supporting in part at least than any other division.

As between the two groups, graduates and nongraduates, 25.01 per cent of the graduates were not in any degree self-supporting, while 31.32 per cent of those who did not complete work in the division of first matriculation did not contribute anything to their own support while in college. The greatest difference between the percentages of graduates and of nongraduates who were in no degree self-supporting is found in agriculture. Only 13.19 per cent of the agricultural graduates contributed nothing to their own support, while 25.21 per cent of the nongraduates in agriculture contributed nothing.

The typical fields of land-grant college activity are largely vocational in character. It may be expected, therefore, that a large proportion of students who matriculate in these institutions will have decided upon their vocation by the time they enter. Tables 19, 20, 21, and 22 present the results of inquiries concerning time of vocational decision for graduates and nongraduates in the major divisions of agriculture, engineering, home economics, arts and sciences, education, and for arts and science graduates and nongraduates who are now engaged in teaching. Attention is called to the fact that these tables are not comparable in all respects since Tables 19 and 21 show total number that did not decide before entrance to college in the columns that in Tables 20 and 22 show the number that did not decide before entrance or during college.

TABLE 19.—*Time of decision on vocation for graduates*

Major division	Total number of cases	No reply		Before entrance to college		Not before entrance to college									
						No reply as to time of decision		Before junior year		Before graduation		Not before graduation		Total number who did not decide before entrance to college	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Agriculture	5,269	39	0.74	3,821	72.51	43	0.82	771	14.63	297	5.65	298	5.65	1,409	26.75
Engineering	10,104	45	.44	7,957	78.75	93	.92	635	6.29	602	5.96	772	7.64	2,102	20.81
Home economics	1,668	16	.95	1,306	78.30	17	1.01	181	10.87	101	6.06	47	2.81	346	20.75
Arts and sciences	4,811	35	.72	3,203	66.58	51	1.06	666	13.84	409	8.51	447	9.29	1,573	32.70
Education	307	2	.65	276	89.91	3	.97	19	6.19	6	1.95	1	.33	29	9.44
Total	22,159	137	.62	16,563	74.75	207	.94	2,272	10.25	1,415	6.38	1,565	7.06	5,459	24.63

TABLE 20.—*Time of decision on vocation for nongraduates*

Major division	Total number of cases	No reply to time of decision		Decided before entrance to college		Decided during attendance at college		Did not decide before entrance or during college	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10
Agriculture	1,960	191	9.74	1,457	74.34	225	11.48	87	4.44
Engineering	5,612	329	5.86	4,397	78.35	599	10.67	287	5.12
Home economics	755	85	11.26	560	74.17	81	10.73	29	3.84
Arts and sciences	4,578	422	9.22	3,073	67.12	748	16.34	335	7.32
Education	177	11	6.21	151	85.31	13	7.35	2	1.13
Total	13,082	1,038	7.93	9,638	73.67	1,666	12.74	740	5.66

TABLE 21.—*Time of decision on vocation for those graduates who matriculated in arts and sciences but are now engaged in teaching*

Arts and science matriculants now in teaching	Total number of cases	No reply		Before entrance to college		Not before entrance to college	
						No reply to time of decision	
		Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	7	6	7	8
Graduates	1,160	5	0.43	811	69.92	12	1.03

Arts and science matriculants now in teaching	Not before entrance to college							
	Before junior year		Before graduation		Not before graduation		Total number not deciding before entrance	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	9	10	11	12	13	14	15	16
Graduates	175	15.08	92	7.93	65	5.61	344	29.65

TABLE 22.—*Time of decision on vocation for those nongraduates who matriculated in arts and sciences but are now engaged in teaching*

Arts and science matriculants now in teaching	Total number of cases	No reply to time of decision		Decided before entrance to college		Decided during attendance at college		Did not decide before entrance or during college	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10
Nongraduates	559	25	4.48	401	71.73	117	20.93	16	2.86

There is rather remarkable uniformity in the percentages in agriculture, engineering, and home economics, both for graduates and nongraduates that decided upon their vocations before entrance to college. Arts and sciences show a considerably lower and education a considerably higher percentage that made the decision before entrance, than is the case in the other three divisions. Arts and sciences show the largest percentage that had not chosen vocations before graduation.

But choice of a vocation prior to or during the college educational experience does not necessarily mean that after leaving college the student will engage in the vocation that was chosen. In order to determine the degree to which these choices were adhered to Tables 23, 24, 25, and 26 were constructed. Tables 23 and 25 show for graduates in each major division of matriculation the relationship of time of choice to the degree to which this choice is confirmed by the nature of present employment; Tables 24 and 26 give similar information for nongraduates. The significance of these tables and comparisons between different fields can not be determined accurately by inspection; the data here given and relationships should be developed in terms of percentages. Owing to limitations of space these figures were not developed in the tables. It was thought that the data would permit of wider and more varied use than the percentage tables.

TABLE 23.—*Relation of college choice of work to present field of work—graduates*

Major division	Field of work chosen before entering college					Field of work chosen before junior year					Field of work chosen before graduation				
	Total number of cases	No reply	Now in same field	Now in allied field	Not in same or allied field	Total number of cases	No reply	Now in same field	Now in allied field	Not in same or allied field	Total number of cases	No reply	Now in same field	Now in allied field	Not in same or allied field
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Agriculture	3,821	99	1,874	1,017	831	771	5	417	203	146	297	6	173	68	50
Engineering	7,957	132	4,712	1,919	1,194	635	3	360	142	130	602	9	364	110	119
Home economics	1,306	40	638	478	150	181	5	76	55	45	101	1	35	33	32
Arts and sciences	3,203	99	1,815	462	827	666	8	367	96	195	409	8	244	45	112
Education	276	8	176	30	62	19	0	14	3	2	6	0	2	1	3
Total	16,563	378	9,215	3,906	3,064	2,272	21	1,234	499	518	1,415	24	818	257	316

TABLE 24.—*Relation of college choice of work to present field of work—nongraduates*

Major division	Field of work chosen before entering college					Field of work chosen while in college				
	Total number of cases	No reply	Now in same field	Now in allied field	Not in same or allied field	Total number of cases	No reply	Now in same field	Now in allied field	Not in same or allied field
1	2	3	4	5	6	7	8	9	10	11
Agriculture	1,457	79	576	228	574	225	10	129	36	50
Engineering	4,397	122	1,387	999	1,889	599	21	350	96	132
Home economics	560	41	174	169	176	81	5	28	23	25
Arts and sciences	3,073	126	1,511	403	1,033	748	26	404	115	203
Education	151	6	68	22	55	13	1	6	1	5
Total	9,638	374	3,716	1,821	3,727	1,666	63	917	271	415

TABLE 25.—*Relation of college choice of work to present field of work for those graduates who matriculated in arts and sciences but are now in teaching*

Arts and science matriculants now in teaching	Field of work chosen before entering college				
	Total number of cases	No reply	Now in same field	Now in allied field	Not in same or allied field
1	2	3	4	5	6
Graduates	811	18	578	118	97

Arts and science matriculants now in teaching	Field of work chosen before junior year					Field of work chosen before graduation				
	Total number of cases	No reply	Now in same field	Now in allied field	Not in same or allied field	Total number of cases	No reply	Now in same field	Now in allied field	Not in same or allied field
1	7	8	9	10	11	12	13	14	15	16
Graduates	175	1	136	25	13	92	0	77	7	8

TABLE 26.—*Relation of college choice of work to present field of work for those nongraduates who matriculated in arts and sciences but are now engaged in teaching*

Arts and science matriculants now in teaching	Field of work chosen before entering college					Field of work chosen while in college				
	Total number of cases	No reply	Now in same field	Now in allied field	Not in same or allied field	Total number of cases	No reply	Now in same field	Now in allied field	Not in same or allied field
1	2	3	4	5	6	7	8	9	10	11
Nongraduates	401	14	240	55	92	117	3	87	14	13

Tables 27 to 34 analyze further occupational data contained in the reports of alumni and ex-students. These tables should be studied in relation to preceding tables that concern occupational choice and present occupations.

TABLE 27.—*Present occupations of those registered in agriculture*

Group	Total number cases	Present field of occupation—									
		No reply		Agriculture		Home economics		Engineering		Forestry	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12
Graduates	5,269	39	0.74	3,246	61.60	99	1.87	152	2.88	103	1.95
Nongraduates	1,960	36	1.83	723	36.88	34	1.73	130	6.63	39	1.98
Total	7,229	75	1.03	3,969	54.90	133	1.83	282	3.90	142	1.96

Group	Present field of occupation—									
	Veterinary medicine		Education		Commerce and business		Professional work		Nonprofessional work	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	13	14	15	16	17	18	19	20	21	22
Graduates	28	0.53	456	8.65	803	15.24	196	3.71	147	2.78
Nongraduates	17	.86	124	6.32	579	29.54	131	6.68	147	7.50
Total	45	.62	580	8.02	1,382	19.11	327	4.53	294	4.08

TABLE 28.—*Major fields of engineering of those who are at present in engineering work*

Group	Total number of cases	Field not indicated	Civil	Electrical	Mechanical	Chemical	Industrial and commercial	Mining	Architectural	Aeronautical	Textile	Agricultural	All other engineering
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Graduates	7,220	161	2,111	2,163	1,532	423	117	293	96	29	3	24	268
Ex-students	1,966	69	697	429	401	77	38	104	60	12	3	3	73
Total	9,186	230	2,808	2,592	1,933	500	155	397	156	41	6	27	341

TABLE 29.—*Occupational field of matriculants who specialized in major branches of engineering* [1]

Field of specialization in college	Total number of cases	No reply to occupation		Present occupation of former student															
				Agriculture		Civil engineering		Electrical engineering		Mechanical engineering		Chemical engineering		Mining engineering		Other engineering		Nonengineering	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Civil engineering:																			
Graduate	2,546	34	1.34	39	1.53	1,757	69.01	28	1.10	56	2.20	11	0.43	33	1.30	63	2.47	525	20.62
Nongraduate	1,378	41	2.97	90	6.53	477	34.62	21	1.52	19	1.38	6	.44	18	1.31	42	3.05	664	48.18
Electrical engineering:																			
Graduate	2,817	56	1.99	27	.96	58	2.06	1,804	64.04	162	5.75	10	.35	10	.35	73	2.59	617	21.91
Nongraduate	1,134	30	2.65	69	6.08	58	5.11	286	25.22	52	4.59	6	.53	11	.97	28	2.47	594	52.38
Mechanical engineering:																			
Graduate	2,262	59	2.61	43	1.90	101	4.47	155	6.85	1,099	45.58	20	.88	16	.71	120	5.31	649	28.69
Nongraduate	1,014	37	3.65	67	6.61	58	5.72	39	3.85	229	22.58	7	.69	14	1.38	35	3.45	528	52.07
Chemical engineering:																			
Graduate	470	14	2.98	8	1.70	11	2.34	3	.64	29	6.17	250	53.19	6	1.28	22	4.68	127	27.02
Nongraduate	221	4	1.81	7	3.17	15	6.79	8	3.62	8	3.62	32	14.48	3	1.35	7	3.17	137	61.99
Mining engineering:																			
Graduate	381	6	1.57	11	2.89	32	8.40	9	2.36	11	2.89	6	1.57	202	53.02	20	5.25	84	22.05
Nongraduate	181	4	2.21	6	3.31	17	9.39	3	1.66	8	4.42	3	1.66	39	21.55	4	2.21	97	53.59
Total	12,404	285	2.30	367	2.96	2,584	20.83	2,356	18.99	1,673	13.49	351	2.83	352	2.84	414	3.34	4,022	32.42

[1] These data are on a basis of 8,476 graduates and 3,928 nongraduates.

TABLE 30.—*Present occupation of those registered in home economics*

Group	Total number of cases	Present field of occupation—													
		No reply		Agriculture		Home economics [1]		Education		Commerce and business		Professional		Nonprofessional	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Graduates	1,668	13	0.77	20	1.19	1,449	86.87	99	5.93	30	1.79	11	0.65	46	2.75
Nongraduates	755	45	5.96	9	1.19	474	62.78	116	15.36	47	6.22	15	1.98	49	6.49
Total	2,423	58	2.39	29	1.19	1,923	79.77	215	8.87	77	3.17	26	1.07	95	3.92

[1] Includes homemakers.

TABLE 31.—*Distribution of former students in arts and sciences according to their present field of occupation*

Group	Total number of cases	Present field of occupation—																	
		No reply		Agriculture		Home economics [1]		Engineering		Forestry		Veterinary medicine		Education		Commerce and business		Professional work		Nonprofessional work	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Graduate	4,811	194	4.03	179	3.72	736	15.30	139	2.89	16	0.33	8	0.17	1,160	24.11	1,026	21.33	977	20.31	376	7.81
Nongraduate	4,578	197	4.30	209	4.57	536	11.71	175	3.82	22	.48	3	.07	559	12.21	1,607	35.10	861	18.81	409	8.93

[1] Includes homemakers.

TABLE 32.—*Distribution of former students in arts and sciences who are now in teaching, according to their present field of occupation*

Group	Total number of cases	No reply		Education																	
				Elementary school		Junior or senior high school				Normal school		College or university		Administration				Supervision		College administration	
						Industry and trades		All other						Superintendents		Principals					
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Graduates	1,160	0	-------	41	3.54	6	0.51	608	52.41	9	0.77	291	25.09	53	4.57	69	5.95	34	2.93	49	4.20
Nongraduates	559	0	-------	91	16.28	8	1.43	281	50.26	7	1.25	61	10.91	24	4.30	47	8.41	23	4.12	17	3.04

TABLE 33.—*Distribution of former students in education according to their present field of occupation*

Group	Total number of cases	No reply		Education																		All other occupations	
				Elementary school		Junior or senior high school				Normal school		College or university		Administration				Supervision		College administration			
						Industry and trades		All other						Superintendents		Principals							
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Graduates	307	8	2.61	9	2.93	1	0.33	102	33.22	1	0.33	14	4.56	16	5.21	16	5.21	6	1.95	3	0.98	131	42.67
Nongraduates	177	9	5.09	32	18.08	0	0	23	12.99	0	0	3	1.70	1	.56	4	2.26	3	1.70	1	.56	101	57.06

TABLE 34.—*Occupations of those with graduate work and those with graduate degrees*

Group	Total number of cases	No reply	Education									All other occupations
			Elementary school	Junior or senior high school		Normal school	College or university	Administration		Supervision	College administration	
				Industry and trades	All other			Superintendent	Principal			
1	2	3	4	5	6	7	8	9	10	11	12	13
Graduate work												
No graduate work:												
Education	354	14	39	1	86	1	6	5	12	8	2	180
Arts and sciences	1,129	0	126	13	609	9	176	42	74	41	39	
One year or less:												
Education	81	0	1	0	29	0	3	2	5	1	2	38
Arts and sciences	299	0	4	1	199	3	29	17	27	10	9	
One year to 2 years:												
Education	8	0	1	0	1	0	1	2	2	0	0	1
Arts and sciences	50	0	1	0	23	1	14	2	5	1	3	
Two years to 3 years:												
Education	0											
Arts and sciences	10	0	0	0	1	0	7	1	0	0	1	
More than 3 years:												
Education	3	0	0	0	0	0	0	0	0	0	0	3
Arts and sciences	4	0	0	0	1	0	1	0	1	0	1	
Degrees												
No degree:												
Education	425	14	41	1	113	0	8	8	18	6	4	212
Arts and sciences	1,268	0	128	13	778	10	101	57	94	44	43	
Master's degree:												
Education	57	3	0	0	12	1	8	9	2	3	0	19
Arts and sciences	382	0	4	1	106	5	194	19	22	13	18	0
Ph. D.:												
Education	2	0	0	0	0	0	1	0	0	0	0	1
Arts and sciences	69	0	0	0	5	1	57	1	0	0	5	0

Tables 35 to 38 indicate whether the graduates and former students in agriculture, engineering, home economics, and arts and sciences are owners of business and the amounts of capital that those who are have invested. Tables 39 to 42 show how the capital invested was obtained.

TABLE 35.—*Ownership of business and amount of capital invested by former students who matriculated in agriculture*

Present occupation	Total number of cases	No reply	Owner, no capital given	Not an owner	Amount of capital							Total number with capital
					Less than $2,500	$2,500 to $4,999	$5,000 to $9,999	$10,000 to $19,999	$20,000 to $49,999	$50,000 to $99,999	$100,000 or more	
1	2	3	4	5	6	7	8	9	10	11	12	13
Farming:												
Graduates	937	39	11	187	98	120	137	156	125	44	20	700
Nongraduates	498	26	7	60	60	79	69	79	77	30	11	405
Agricultural business:												
Graduates	591	49	1	353	41	34	40	32	29	6	6	188
Nongraduates	129	7	4	54	12	6	9	15	7	10	5	64
All other occupations: [1]												
Graduates	1,984	375	16	1,074	127	84	95	93	71	21	28	519
Nongraduates	1,201	225	18	571	109	72	60	56	45	20	25	387
Total	5,340	721	57	2,299	447	395	410	431	354	131	95	2,263

[1] Excluding agricultural teaching.

TABLE 36.—*Ownership of business and amount of capital invested by former students who matriculated in engineering*

Group	Total number of cases	No reply	Owner, no capital invested	Not an owner	Amount of capital							Total number with capital
					Less than $2,500	$2,500 to $4,999	$5,000 to $9,999	$10,000 to $19,999	$20,000 to $49,999	$50,000 to $99,999	$100,000 or more	
1	2	3	4	5	6	7	8	9	10	11	12	13
Civil engineering:												
Graduates	2,111	190	11	1,524	112	62	48	59	49	27	29	386
Nongraduates	697	105	4	456	30	26	24	23	16	9	4	132
Electrical engineering:												
Graduates	2,163	172	12	1,475	307	60	42	39	27	15	14	504
Nongraduates	429	45	1	266	59	15	20	8	7	3	5	117
Mechanical engineering:												
Graduates	1,532	107	15	1,058	113	47	57	42	38	22	33	352
Nongraduates	401	35	8	234	40	21	16	19	12	9	7	124
Chemical engineering:												
Graduates	423	27	5	328	20	8	12	9	8	2	4	63
Nongraduates	77	9	0	52	6	1	1	4	3	0	1	16
Mining engineering:												
Graduates	293	28	2	200	15	6	6	10	11	5	10	63
Nongraduates	104	11	15	51	6	6	2	2	6	0	5	27
Total	8,230	729	73	5,644	708	252	228	215	177	92	112	1,784

TABLE 37.—*Ownership of business and amount of capital invested by former students who matriculated in home economics*

Present occupation	Total number of cases	No reply	Owner, no capital given	Not an owner	Amount of capital						Total number with capital
					Less than $2,500	$2,500 to $4,999	$5,000 to $9,999	$10,000 to $19,999	$20,000 to $49,999	$50,000 to $99,999 [2]	
1	2	3	4	5	6	7	8	9	10	11	12
Home economics business:											
Graduates	141	34	1	95	6	3	1	1	0	0	11
Nongraduates	27	6	1	17	2	1	0	0	0	0	3
All other occupations: [1]											
Graduates	206	70	1	115	6	3	5	1	3	2	20
Nongraduates	236	86	1	133	5	2	3	3	3	0	16
Total	610	196	4	360	19	9	9	5	6	2	50

[1] Excluding homemakers and home economics teachers.
[2] None reported $100,000 or more.

TABLE 38.—*Ownership of business and amount of capital invested by former students who matriculated in arts and sciences*

Group	Total number of cases	No reply	Owner, no capital given	Not an owner	Amount of capital invested							Total number with capital
					Less than $2,500	$2,500 to $4,999	$5,000 to $9,999	$10,000 to $19,999	$20,000 to $49,999	$50,000 to $99,999	$100,000 or more	
1	2	3	4	5	6	7	8	9	10	11	12	13
Graduates	4,811	1,525	85	2,249	254	170	181	135	106	50	56	952
Nongraduates	4,578	1,194	68	1,964	442	255	210	178	136	59	72	1,352
Total	9,389	2,719	153	4,213	696	425	391	313	242	109	128	2,304

TABLE 39.—*Methods by which owners of businesses secured capital—agriculture*

Present occupation	Total number of cases	How capital was secured																	
		No reply		Earned		Borrowed		Earned and borrowed		Inherited		Earned and inherited		Borrowed and inherited		Earned, borrowed, inherited		Secured in other ways	
		Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Farming:																			
Graduates	700	2	2	194	107	72	75	34	38	29	72	11	22	4	1	3	15	6	13
Nongraduates	405	0	2	123	73	36	31	14	14	17	36	12	22	1	2	1	10	4	7
Agricultural business:																			
Graduates	188	4	2	78	48	14	8	11	8	4	5	2	0	1	0	0	0	1	2
Nongraduates	64	0	21	20	5	3	4	3	3	0	3	0	0	0	0	0	0	1	1
All other occupations except agricultural teaching:																			
Graduates	519	13	4	219	115	28	25	18	29	11	15	5	16	0	1	2	1	10	7
Nongraduates	387	6	1	163	84	28	16	20	16	10	9	4	14	1	2	0	0	9	4
Total	2,263	25	32	797	432	181	159	100	108	71	140	34	74	7	6	6	26	31	34

TABLE 40.—*Methods by which owners of businesses secured capital—engineering*

Present occupation	Total number of cases	How capital was secured																	
		No reply		Earned		Borrowed		Earned and borrowed		Inherited		Earned and inherited		Borrowed and inherited		Earned, borrowed, inherited		Secured in other ways	
		Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Civil engineering:																			
Graduates	386	5	1	195	139	7	6	2	7	7	4	1	4	0	0	0	0	5	3
Nongraduates	132	3	3	68	38	3	2	4	3	3	4	0	1	0	0	0	0	0	0
Electrical engineering:																			
Graduates	504	10	3	370	70	9	7	1	4	10	2	2	4	1	0	0	0	7	4
Nongraduates	117	4	1	85	16	2	1	3	0	0	1	0	1	0	1	0	1	0	1
Mechanical engineering:																			
Graduates	352	8	2	180	100	18	8	3	5	3	8	0	3	0	0	0	2	5	7
Nongraduates	124	1	2	53	30	8	2	3	2	5	3	0	1	0	0	0	2	7	5
Chemical engineering:																			
Graduates	63	1	1	32	14	3	4	0	0	0	1	1	1	0	0	0	0	3	2
Nongraduates	16	0	0	8	5	0	1	0	1	0	0	0	0	0	0	0	0	0	1
Mining engineering:																			
Graduates	63	1	1	28	24	0	2	0	1	0	2	0	1	0	0	0	1	0	2
Nongraduates	27	0	0	13	10	0	0	0	1	0	1	0	1	0	0	0	1	0	0
Total	1,784	33	14	1,032	446	50	33	16	24	28	26	4	17	1	1	0	7	27	25

TABLE 41.—*Methods by which owners of businesses secured capital—home economics*

Present occupation	Total number of cases	How capital was secured																	
		No reply		Earned		Borrowed		Earned and borrowed		Inherited		Earned and inherited		Borrowed and inherited		Earned, borrowed, inherited		Secured in other ways	
		Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Home economics business:																			
Graduates	11	0	0	6	1	2	0	0	0	1	0	1	0	0	0	0	0	0	0
Nongraduates	3	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
All other occupations:[1]																			
Graduates	20	0	0	9	1	2	0	0	0	1	5	1	0	0	0	0	0	1	0
Nongraduates	16	0	1	5	3	0	1	0	0	3	2	1	0	0	0	0	0	0	0
Total	50	0	1	22	5	5	1	0	0	5	7	3	0	0	0	0	0	1	0

[1] Excluding homemakers and home economics teachers.

TABLE 42.—*Methods by which owners of businesses secured capital—arts and sciences*

Group	Total number of cases	How capital was secured																	
		No reply		Earned		Borrowed		Earned and borrowed		Inherited		Earned and inherited		Borrowed and inherited		Earned, borrowed, inherited		Secured in other ways	
		Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more	Less than $10,000	$10,000 or more
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Graduates	952	17	6	416	205	69	18	40	32	33	45	14	19	1	1	0	7	15	14
Nongraduates	1,352	29	9	578	239	134	25	72	51	42	52	17	40	2	0	3	11	30	18
Total	2,304	46	15	994	444	203	43	112	83	75	97	31	59	3	1	3	18	45	32

As was to be expected the greater number with capital invested who matriculated in agriculture have investments in farming, 1,105 out of a total of 2,263 who are in business for themselves, at least to the extent of capital investments. Slightly more than 900 have capital invested in business other than farming or related agricultural enterprises. Slightly more of the entire group, graduates and nongraduates, are not owners than are owners. But of the graduates 1,614 are not owners as compared with 1,407 who are, while 685 nongraduates are not owners as compared with 856 who are. These facts do not, of course, indicate conclusively that the nongraduates are in larger proportions more prosperous than graduates; more general ownership of business does not necessarily indicate larger income.

In view of recent doubt that has been raised concerning the financial advantages of college education, it is interesting to attempt to discover whether agricultural nongraduates who have capital invested have earned it more generally than is the case of graduates. Table 39 shows that of the total number of agricultural graduates that have capital invested in amounts of less than $10,000, 34.9 per cent earned the money and that of the total number of nongraduates with similar amounts invested, 35.7 earned their capital. Similar comparisons for those who have more than $10,000 invested show that 19.1 per cent of the graduates and 18.9 per cent of the nongraduates earned their capital. The differences are so slight as to have no significance.

The tables show that engineering matriculants less usually have capital investments in the business than is the case of agriculture, 21.7 per cent as compared with 42.4 per cent. The percentages of the different types of engineering specializations that have capital invested vary only slightly; 14.9 per cent of the chemical, 18.3 per cent of the civil, 21.5 per cent of the mining, 22.9 per cent of the mechanical, and 23.3 per cent of the electrical engineers have capital invested.

However, the engineers who have earned capital invested, in amounts of less than $10,000 constitute 57.8 per cent of the total number with investments, while those with earned capital in excess of $10,000 constitute 25 per cent of the total. The corresponding figures for agriculture matriculants are 35.2 per cent and 19.1 per cent.

Very few home economics matriculants, even after homemakers and teachers are excluded, have capital invested. Only 8.2 per cent have such investments. However, those who have less than $10,000 earned capital invested constitute 44 per cent of the total with capital, and those with more than $10,000 earned capital constitute 10 per cent

of the total. The only other method of securing capital in excess of $10,000 that occurs more frequently than earning is inheritance; 14 per cent of the total number with investments secured the capital by inheritance.

Of the arts and science matriculants 24.5 per cent have capital invested in business but a much smaller proportion of the graduates than nongraduates have such investments, 19.8 per cent as compared with 29.5 per cent. Graduates with earned capital of less than $10,000 invested constitute 43.7 per cent of the total number of graduates with investments and those with more than $10,000, 21.5 per cent. Similar percentages for nongraduates are 42.7 per cent and 17.7 per cent. It seems that only a slightly larger proportion of graduates than nongraduates in arts and sciences earn the capital that they invest in business.

The reports from alumni and ex-students furnished material for a variety of salary studies. This report treats only one aspect of the many that presented themselves, the present salaries[1] of graduates of the land-grant institutions. The number of cases available was 23,284, a somewhat larger number than has been considered in preceding portions of this report. Graduates in all major divisions are here considered rather than those of agriculture, engineering, home economics, arts and sciences, and education alone.[2]

Table 43 presents the present average annual salaries of this entire group by years since graduation and by number of cases.

TABLE 43.—*Present average annual salaries of graduates, grouped according to number of years since graduation*

Approximate number of years since graduation	Number of graduates	Average annual salary
1	687	$1,802.11
2	6,683	2,088.54
5	5,995	2,919.28
10	3,397	4,630.26
15	2,883	5,918.78
20	1,538	7,234.92
25	1,096	7,811.82
30	1,005	8,375.97
Total	23,284	

[1] The Institute of Women's Professional Relations, national headquarters at North Carolina College for Women, Greensboro, N. C., is using (June, 1930) these reports to make extended studies of occupational choices, self-help, and salaries.

[2] Dr. George W. Hervey and his staff from the U. S. Bureau of Efficiency made the statistical computations and prepared the substance of the comment for this salary study.

Table 44 shows the number of graduates in each of 24 occupational groupings with average annual salary for each occupation.

TABLE 44.—*Present average annual salaries of graduates, by occupational groups*

Group	Number of graduates	Average annual salary
High-school teachers (men)	1,289	$2,459.46
College instructors (men)	1,272	3,794.81
Superintendents of schools (men)	265	3,599.06
Elementary teachers (women)	121	1,725.62
High-school teachers (women)	2,038	1,722.89
College instructors (women)	250	2,287.00
Superintendents of schools (women)	80	2,213.75
Mechanical engineers	1,019	4,265.60
Electrical engineers	1,726	3,618.92
Civil engineers	1,643	4,116.10
Technical engineers	1,433	4,618.11
Physicians and surgeons	413	7,791.89
Lawyers	728	5,754.46
Dentists	168	4,148.81
Clergymen	114	2,785.09
Veterinarians	320	4,351.72
Dietitians (women)	177	2,079.10
Foresters	168	2,975.30
Home demonstration agents (women)	116	2,081.90
Agriculturists	1,943	3,139.55
Other professional workers	1,956	3,522.11
Employees in banking and finance	226	5,703.54
Insurance employees	380	4,776.32
Employees in commerce and business	5,439	5,366.10
Total	23,284	

The tables that follow give distribution of cases according to present annual salaries and the number of years since graduation for each of the occupations and in the order listed by Table 44. The average annual salary for each of the year intervals has been figured for each table. Use of the average salary tends to raise the salary level somewhat above the median. However, the medians may be computed from the data given and presumable relationships between medians would differ little from those between averages.

The tables show existing levels of salaries at intervals following graduation but they may not be used to determine salaries exactly for years within these intervals. The time available for this study was not sufficient to permit of the extended mathematical treatment of all the data that would have been necessary to prepare tables for this purpose. Further, the importance of such analysis for the purposes of this report would not have justified the labor that would have been required. However, more detailed analysis of the data has been made for (1) engineers, (2) men college instructors, and (3) for employees in commerce and business, not including graduates in banking and finance or insurance.

The figures on the salaries of men graduates who are college instructors show very low scales. Table 47 summarizes data for 1,272 such teachers of all academic ranks.

TABLE 45.—*High-school teachers (men)—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
$500 to $999	1	5	2	1					9	0.70	0.70
$1,000 to $1,999	14	230	117	20	3	3	2	2	391	30.33	31.03
$2,000 to $2,999	5	186	364	85	50	7	10	8	715	55.47	86.50
$3,000 to 4,999	1	11	37	39	30	10	10	15	153	11.87	98.37
$5,000 to $7,499		1	1	2	3	4	1	3	15	1.16	99.53
$7,500 to $9,999								1	1	.08	99.61
$10,000 to $19,999				1	2	1		1	5	.39	100.00
Total individuals	21	433	521	148	88	25	23	30	1,289	100.00	
Average salary	$1,821.43	$1,995.38	$2,382.44	$2,883.45	$3,389.20	$4,080.00	$3,228.26	$4,183.33	$2,459.46		

TABLE 46.—*College instructors (men)—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
$500 to $999	2	8	3						13	1.02	1.02
$1,000 to $1,999	10	117	36	10	2	2			177	13.92	14.94
$2,000 to $2,999	8	110	167	71	25	16	6	4	407	31.99	46.93
$3,000 to $4,999	1	8	56	114	124	75	41	38	457	35.93	82.86
$5,000 to $7,499		2	8	18	40	31	28	27	154	12.11	94.97
$7,500 to $9,999			2	6	7	7	11	10	43	3.38	98.35
$10,000 to $19,999				2		5	3	4	14	1.10	99.45
$20,000 to $24,999			1		2	3		1	7	.55	100.00
Total individuals	21	245	273	221	200	139	89	84	1,272	100.00	
Average salary	$1,928.57	$2,044.90	$2,885.53	$3,816.74	$4,588.75	$5,327.34	$5,564.61	$5,961.31	$3,794.81		

TABLE 47.—*College instructors (men) distributed according to their present average annual salaries, and the number of years since graduation, with normal salary values calculated from the data*

Years graduated	Number of instructors	Average salary observed	Normal salary calculated[1]	Normal gain calculated
1	2	3	4	5
0			$1,691.16	
1	21	$1,928.57	1,929.00	$237.84
2	245	2,044.90	2,159.80	230.80
3			2,383.88	224.08
4			2,601.48	217.60
5	273	2,885.53	2,812.76	211.28
6			3,017.64	204.88
7			3,216.37	198.73
8			3,409.11	192.74
9			3,595.91	186.80
10	221	3,816.74	3,776.90	180.99
11			3,952.03	175.13
12			4,121.66	169.63
13			4,285.31	163.65
14			4,443.31	158.00
15	200	4,588.75	4,595.37	152.06
16			4,741.47	146.10
17			4,881.42	139.95
18			5,014.96	133.54
19			5,142.57	127.61
20	139	5,327.34	5,261.26	118.69
21			5,373.11	111.85
22			5,476.45	103.34
23			5,570.43	93.98
24			5,653.82	83.39
25	89	5,564.61	5,725.39	71.57
26			5,783.33	57.94
27			5,825.56	42.23
28			5,849.34	23.78
29			5,851.73	2.39
30	84	5,961.31	5,828.73	−23.00

[1] Calculated by use of a formula developed by Dr. George W. Hervey. Average wage=$10,034.91−(8,341.63) (0.97145) years graduated−(1.99527) (1.21619) years graduated.

When the average salaries are plotted and a smooth curve drawn to represent the normal calculated salaries it is a curve of diminishing increments. The magnitudes of the annual gains change at all points and there is a pronounced tapering off beyond the twenty-fifth year which actually becomes a descent after the twenty-ninth year.

Table 48 shows the normal salary calculated for college instructors, the average deviation from normal salary, average range, and the index of variation.

TABLE 48.—*Variability of the salaries of college instructors (men) about the normal salary trend*

Years graduated	Normal salary calculated	Average deviation from normal salary	Average range	Index of variation
1	2	3	4	5
1	$1,929.00	$632.71	$1,296.29–$2,561.71	32.80
2	2,159.80	607.34	1,552.46– 2,767.14	28.12
3	2,812.76	846.97	1,965.79– 3,659.73	30.11
10	3,776.90	1,134.22	2,642.68– 4,911.12	30.03
15	4,595.37	1,317.39	3,277.98– 5,912.76	28.67
20	5,261.26	2,171.07	3,090.19– 7,432.33	41.27
25	5,725.39	1,863.79	3,861.60– 7,589.18	32.55
30	5,828.73	2,104.17	3,724.56– 7,932.90	36.10

This table should be compared with Table 58 which gives similar data for engineers. Deviations from normal salary for college instructors who have been graduates for 10 years or more are smaller both absolutely and relatively than for engineers. At 15 years after graduation the normal salary for college instructors is $4,595.37 as compared with $5,733.43 for engineers, and the average range for the former is $3,277.98 to $5,912.76, while for the latter it is $3,451.12 to $8,015.74. Comparisons for other intervals show similar disadvantageous salary compensation for the college instructor. No accurate method is available to determine what proportion of the college instructors considered in these calculations are on the 9 months' and what on the 12 months' basis of employment. If all were on the 9 months' basis, it would have to be admitted that these comparisons with engineering salaries are not entirely justified. But reference to Table 1 in Part VII of the Land-Grant College Survey will show that 37 per cent of the instructors in land-grant institutions are on the 12 months' basis. Since a considerable proportion of land-grant college graduates, who become college instructors do so in land-grant institutions, it is highly probable that the objection to comparison with the engineers should not be accepted as having the full weight that it at first appears to have.

TABLE 49.—*Superintendents of schools (men)—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
$1,000 to $1,999		17	12	2				1	32	12.07	12.07
$2,000 to $2,999	1	25	63	10	4	1	3	4	111	41.89	53.96
$3,000 to $4,999		5	18	21	25	8	4	7	88	33.21	87.17
$5,000 to $7,499			2	2	6	8	1	5	24	9.05	96.22
$7,500 to $9,999				1	2		1	1	5	1.89	98.11
$10,000 to $19,999				2				2	4	1.51	99.62
$20,000 to $24,999					1				1	.38	100.00
Total individuals	1	47	95	38	38	17	9	20	265	100.00	
Average salary	$2,500.00	$2,297.87	$2,736.84	$4,296.05	$4,934.21	$4,970.59	$4,277.78	$5,475.00	$3,599.06		

TABLE 50.—*Elementary teachers (women)—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
Less than $500					1				1	0.83	0.83
$500 to $999	3	2	4		1	1		1	12	9.92	10.75
$1,000 to $1,999	3	37	24	7	4	5	3	1	84	69.42	80.17
$2,000 to $2,999		8	3	1	2	2	1	1	18	14.88	95.05
$3,000 to $4,999		1	1			2			4	3.30	98.35
$5,000 to $7,499				2					2	1.65	100.00
Total individuals	6	48	32	10	8	10	4	3	121	100.00	
Average salary	$1,125.00	$1,687.50	$1,578.13	$2,550.00	$1,506.25	$2,125.00	$1,750.00	$1,583.33	$1,725.62		

TABLE 51.—*High-school teachers (women)—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
$500 to $999	12	43	24	6	1				86	4.22	4.22
$1,000 to $1,999	145	794	433	83	38	12	10	1	1,516	74.38	78.60
$2,000 to $2,999	7	97	121	74	40	16	22	10	387	18.99	97.59
$3,000 to $4,999		2	7	11	9	9	2	6	46	2.26	99.85
$5,000 to $7,499					1			1	2	.10	99.95
$7,500 to $9,999						1			1	.05	100.00
Total individuals	164	936	585	174	89	38	34	18	2,038	100.00	
Average salary	$1,487.80	$1,574.52	$1,705.98	$2,057.47	$2,247.19	$2,703.95	$2,294.12	$3,152.78	$1,722.89		

TABLE 52.—*College instructors (women)—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
$500 to $999	1	5		2					8	3.20	3.20
$1,000 to $1,999	4	51	39	8	4		1	1	108	43.20	46.40
$2,000 to $2,999	1	19	39	16	12	7	5	1	100	40.00	86.40
$3,000 to $4,999		1	4	7	9	3	4	2	30	12.00	98.40
$5,000 to $7,499				1	1	1			3	1.20	99.60
$7,500 to $9,999											
$10,000 to $19,999							1		1	.40	100.00
Total individuals	6	76	82	34	26	11	11	4	250	100.00	
Average salary	$1,541.67	$1,733.55	$2,097.56	$2,580.88	$3,009.62	$3,250.00	$4,090.91	$3,000.00	$2,287.00		

TABLE 53.—*Superintendents of schools (women)—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
Less than $500		1			1				2	2.50	2.50
$500 to $999	1		2						3	3.75	6.25
$1,000 to $1,999	6	12	4	3	4				29	36.25	42.50
$2,000 to $2,999		8	12	5	9	2	1		37	46.25	88.75
$3,000 to $4,999				1	3	2	2		8	10.00	98.75
$5,000 to $7,499		1							1	1.25	100.00
$7,500 to $9,999											
Total individuals	7	22	18	9	17	4	3		80	100.00	
Average salary	$1,392.86	$2,025.00	$2,083.33	$2,333.33	$2,400.00	$3,250.00	$3,500.00		$2,213.75		

TABLE 54.—*Mechanical engineers—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
Less than $500		3							3	0.29	0.29
$500 to $999		1	1						2	.20	.49
$1,000 to $1,999	10	112	16	3	2		1	1	145	14.23	14.72
$2,000 to $2,999	3	122	127	32	12	7	4	1	308	30.23	44.95
$3,000 to $4,999	1	19	107	71	60	42	21	16	337	33.07	78.02
$5,000 to $7,499		3	6	20	48	29	17	11	134	13.15	91.17
$7,500 to $9,999		1	2	4	15	9	7	5	43	4.22	95.39
$10,000 to $19,999				3	5	10	9	8	35	3.43	98.82
$20,000 to $24,999		1		2	1	1	5	2	12	1.18	100.00
Total individuals	14	262	259	135	143	98	64	44	1,019	100.00	
Average salary	$1,892.86	$2,292.56	$3,186.29	$4,581.48	$5,606.64	$6,306.12	$7,976.56	$7,852.27	$4,265.60		

TABLE 55.—*Electrical engineers—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
$500 to $999		2				1			3	0.17	0.17
$1,000 to $1,999	20	306	34	3	2	1	1	1	368	21.32	21.49
$2,000 to $2,999	9	243	333	35	15	14	4	2	655	37.95	59.44
$3,000 to $4,999		14	147	113	76	42	29	12	433	25.09	84.53
$5,000 to $7,499			4	29	44	46	28	13	164	9.50	94.03
$7,500 to $9,999				4	11	12	16	5	48	2.78	96.81
$10,000 to $19,999					8	12	15	13	48	2.78	99.59
$20,000 to $24,999				1		3	3		7	.41	100.00
Total individuals	29	565	518	185	156	131	96	46	1,726	100.00	
Average salary	$1,810.34	$1,989.38	$2,889.00	$4,231.08	$5,357.37	$6,452.29	$7,656.25	$8,141.30	$3,618.92		

TABLE 56.—*Civil engineers—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
$500 to $999	1	1		1					3	0.18	0.18
$1,000 to $1,999	13	130	20	1	1	2		2	169	10.29	10.47
$2,000 to $2,999	14	286	204	58	36	13	13	8	632	38.47	48.94
$3,000 to $4,999		40	128	108	117	69	33	33	528	32.14	81.08
$5,000 to $7,499		2	7	32	59	35	30	26	191	11.62	92.70
$7,500 to $9,999			1	4	15	13	7	15	55	3.35	96.05
$10,000 to $19,999				3	14	11	5	10	43	2.61	98.66
20,000 to $24,999			2		4	5	7	4	22	1.34	100.00
Total individuals	28	459	362	207	246	148	95	98	1,643	100.00	
Average salary	$1,973.21	$2,360.02	$3,175.41	$4,150.97	$5,526.42	$6,226.35	$6,797.37	$7,028.06	$4,116.10		

TABLE 57.—*Technical engineers—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
$500 to $999	1	2							3	0.20	0.20
$1,000 to $1,999	12	160	26	1				2	201	14.03	14.23
$2,000 to $2,999	7	230	196	22	13	4	5	2	479	33.43	47.66
$3,000 to $4,999	1	35	133	88	84	38	21	11	411	28.68	76.34
$5,000 to $7,499		3	17	41	47	24	27	9	168	11.72	88.06
$7,500 to $9,999			4	7	20	15	14	6	66	4.61	92.67
$10,000 to $19,999			1	2	12	25	17	12	69	4.82	97.49
$20,000 to $24,999				2	3	10	9	12	36	2.51	100.00
Total individuals	21	430	377	163	179	116	93	54	1,433	100.00	
Average salary	$1,916.67	$2,268.02	$3,228.78	$4,914.11	$6,060.06	$8,993.53	$9,088.71	$11,310.19	$4,618.11		

When engineers of all types are combined into one group, 5,821 cases become available for study. Dr. George W. Hervey evolved from detailed treatment and test of these data the following formula of wage increase which is easily applied and mathematically valid: Average wage = $1,633.50+285.67 (years graduates) −.2982 (years graduates) 3.2250. Table 58 gives the actual averages observed and the magnitudes yielded by application of this formula.

TABLE 58.—*Engineers distributed according to their present average annual salaries and the number of years since graduation, with normal salary values calculated from the data*

Years graduated	Number of engineers	Average salary observed	Normal salary calculated	Normal gain calculated
1	2	3	4	5
0			$1,633.50	
1	92	$1,896.74	1,919.14	$285.64
2	1,716	2,204.63	2,204.56	285.42
3			2,489.48	284.92
4			2,773.57	284.09
5	1,516	3,092.68	3,056.50	282.93
6			3,337.88	281.38
7			3,617.34	279.46
8			3,894.48	277.14
9			4,168.89	274.41
10	690	4,436.96	4,440.12	271.33
11			4,707.79	267.67
12			4,971.40	263.61
13			5,230.52	259.12
14			5,484.69	254.17
15	724	5,637.78	5,733.43	248.74
16			5,976.26	242.83
17			6,212.71	236.45
18			6,442.28	229.57
19			6,664.47	222.19
20	493	6,953.34	6,878.78	214.29
21			7,084.64	205.88
22			7,281.65	197.01
23			7,469.16	187.51
24			7,646.75	177.59
25	348	7,883.51	7,813.81	167.06
26			7,969.87	156.06
27			8,114.33	144.46
28			8,246.61	132.28
29			8,366.27	119.66
30	242	8,345.04	8,473.39	107.12

However, normal salary is not the exact salary for very many of the engineers studied. Variability of salary above and below the normal trend is the rule. Table 59 shows the calculated normal salary, average deviation from normal, average range, and the index of variation.

TABLE 59.— *Variability of the salaries of engineers about the normal salary trend*

Years graduated	Normal salary calculated	Average deviation from normal salary	Average range	Index of variation
1	2	3	4	5
1	$1,919.14	$526.95	$1,392.19–$2,446.09	27.46
2	2,204.56	600.05	1,604.51– 2,804.61	27.22
5	3,056.50	866.25	2,190.25– 3,922.75	28.34
10	4,440.12	1,408.77	3,031.35– 5,848.89	31.73
15	5,733.43	2,282.31	3,451.12– 8,015.74	39.81
20	6,878.76	3,635.81	3,242.95–10,514.57	52.85
25	7,813.81	4,443.86	3,369.95–12,257.67	56.87
30	8,473.39	5,324.18	3,149.21–13,797.57	62.83

The engineer who has been graduated only a year earns on the average an amount that falls within approximately $527 of normal salary or within a range of $1,054. The salaries of engineers having longer service show wider deviations which are covered by correspondingly larger spreads. What the increase in variability of salary according to years of experience means on a relative basis is demonstrated by the set of index values contained in the last column [3] of Table 59. The indices are fairly constant for graduates of five years or less, then they rise with continuously greater velocity, attaining their high point in the case of graduates of 30 years' standing.

The salaries of the different types of engineers vary among themselves. The technical engineers, that is mining, chemical, architectural, hydraulic, aeronautical, research, and sanitary engineers, have distinctly higher salaries than the civil, electrical, and mechanical groups and they also increase at more rapid rates. Mechanical engineers who have been graduated 10 years earn more than the civil and electrical groups at the same period, but electrical engineers lead for both the 20 and 30 year graduates. Civil engineers are the poorest paid at each of the 10-year divisions.

[3] The magnitudes in this column were computed in each instance by multiplying the average deviation by 100 and dividing by normal salary.

TABLE 60.—*Physicians and surgeons—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
Less than $500			1						1	0.24	0.24
$500 to $999	5	1	1						7	1.70	1.94
$1,000 to $1,999	7	16	7	2		1	1	1	35	8.47	10.41
$2,000 to $2,999	12	22	8	5	2	3		4	56	13.56	23.97
$3,000 to $4,999	11	20	14	7	7	4		7	70	16.95	40.92
$5,000 to $7,499	2	11	10	17	12	10	7	12	81	19.61	60.53
$7,500 to $9,999	2	3	2	22	7	9	6	14	65	15.74	76.27
$10,000 to $19,999			4	17	15	9	13	14	72	17.43	93.70
$20,000 to $24,999			1	5	5	3	5	7	26	6.30	100.00
Total individuals	39	73	48	75	48	39	32	59	413	100.00	
Average salary	$3,032.05	$3,489.73	$5,209.38	$9,463.33	$10,557.29	$9,455.13	$12,664.06	$10,245.76	$7,791.89		

TABLE 61.—*Lawyers—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
$500 to $999	9	5							14	1.92	1.92
$1,000 to $1,999	39	98	13	3	1		1	2	157	21.57	23.49
$2,000 to $2,999	12	51	29	18	6	1	2	4	123	16.90	40.39
$3,000 to $4,999	1	20	38	28	19	15	10	22	153	21.02	61.41
$5,000 to $7,499	1	3	20	35	18	16	14	18	125	17.17	78.58
$7,500 to $9,999		1	3	15	6	9	10	10	54	7.42	86.00
$10,000 to $19,999			4	12	13	10	13	18	70	9.61	95.61
$20,000 to $24,999				5	2	8	3	14	32	4.39	100.00
Total individuals	62	178	107	116	65	59	53	88	728	100.00	
Average salary	$1,701.61	$2,167.13	$4,254.67	$6,931.03	$7,653.85	$9,682.20	$9,132.08	$16,068.18	$5,754.46		

TABLE 62.—*Dentists—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
$500 to $999	4	3							7	4.17	4.17
$1,000 to $1,999	9	17	6			1			33	19.64	23.81
$2,000 to $2,999	4	25	8						37	22.02	45.83
$3,000 to $4,999	1	25	15	6	1		1		49	29.17	75.00
$5,000 to $7,499	1	4	14	5	1			1	26	15.48	90.48
$7,500 to $9,999			7	1		1			9	5.35	95.83
$10,000 to $19,999			3	2			1		6	3.57	99.40
$20,000 to $24,999			1						1	.60	100.00
Total individuals	19	74	54	14	2	2	2	1	168	100.00	
Average salary	$1,934.21	$2,908.78	$5,652.78	$6,714.29	$5,125.00	$5,125.00	$9,500.00	$6,250.00	$4,148.81		

TABLE 63.—*Clergymen—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
$500 to $999		3	1	1	1				6	5.26	5.26
$1,000 to $1,999	5	8	6	6	3	3		3	34	29.82	35.08
$2,000 to $2,999	2	8	9	7	2	2	2	10	42	36.84	71.92
$3,000 to $4,999	2		3	4	5	3	2	4	23	20.18	92.10
$5,000 to $7,499			2	2		1	1	2	8	7.02	99.12
$7,500 to $9,999											
$10,000 to $19,999								1	1	.88	100.00
Total individuals	9	19	21	20	11	9	5	20	114	100.00	
Average salary	$2,277.78	$1,802.63	$2,702.38	$2,787.50	$2,750.00	$3,083.33	$3,850.00	$3,650.00	$2,785.09		

TABLE 64.—*Veterinarians—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
Less than $500		1							1	0.31	0.31
$500 to $999	1	2							3	.94	1.25
$1,000 to $1,999	13	28	8	3	3		1		56	17.50	18.75
$2,000 to $2,999	3	23	24	14	15	4	2	1	86	26.88	45.63
$3,000 to $4,999		19	22	21	19	5	7	6	99	30.94	76.57
$5,000 to $7,499			6	10	10	4	4	1	35	10.94	87.51
$7,500 to $9,999				8	4	5	3	1	21	6.56	94.07
$10,000 to $19,999		1		6	4	5	1	1	18	5.62	99.69
$20,000 to $24,999								1	1	.31	100.00
Total individuals	17	74	60	62	55	23	18	11	320	100.00	
Average salary	$1,632.35	$2,598.65	$3,291.67	$5,580.65	5,009.09	$7,554.35	$5,597.22	$7,181.82	$4,351.72		

TABLE 65.—*Dietitians (women)—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation							Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	30			
1	2	3	4	5	6	7	8	9	10	11
$500 to $999	1	1	2	1				5	2.83	2.83
$1,000 to $1,999	9	56	17	5	1		1	89	50.28	53.11
$2,000 to $2,999	3	29	18	13	5	1		69	38.98	92.09
$3,000 to $4,999	1	4	7			1		13	7.35	99.44
$5,000 to $7,499				1				1	.56	100.00
Total individuals	14	90	44	20	6	2	1	177	100.00	
Average salary	$1,839.29	$1,925.00	$2,272.73	$2,350.00	$2,333.33	$3,250.00	$1,500.00	$2,079.10		

TABLE 66.—*Foresters—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
Less than $500		2							2	1.19	1.19
$500 to $999		3							3	1.79	2.98
$1,000 to $1,999	4	23	10		1				38	22.62	25.60
$2,000 to $2,999	3	27	27	6	6	3			72	42.86	68.46
$3,000 to $4,999		4	9	13	16	1	2		45	26.79	95.25
$5,000 to $7,499			1	1	1			1	4	2.38	97.63
$7,500 to $9,999						1	1		2	1.19	98.82
$10,000 to $19,999					1				1	.59	99.41
$20,000 to $24,999								1	1	.59	100.00
Total individuals	7	59	47	20	25	5	3	2	168	100.00	
Average salary	$1,928.57	$2,048.31	$2,654.26	$3,662.50	$4,070.00	$4,050.00	$5,583.33	$14,375.00	$2,975.30		

TABLE 67.—*Home-demonstration agents (women)—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation							Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25			
1	2	3	4	5	6	7	8	9	10	11
$500 to $999		1						1	0.86	0.86
$1,000 to $1,999	3	31	16	6	2			58	50.00	50.86
$2,000 to $2,999	1	21	19	8	2			51	43.97	94.83
$3,000 to $4,999			2	1	1		1	5	4.31	99.14
$5,000 to $7,499						1			.86	100.00
Total individuals	4	53	37	15	5	1	1	116	100.00	
Average salary	$1,750.00	$1,882.08	$2,148.65	$2,200.00	$2,400.00	$6,250.00	$4,000.00	$2,081.90		

TABLE 68.—*Agriculturists—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
Less than $500	1	5						2	8	0.41	0.41
$500 to $999	7	60	20	15	10	2		3	117	6.02	6.43
$1,000 to $1,999	12	221	116	76	40	9	11	10	495	25.48	31.91
$2,000 to $2,999	11	180	195	126	65	18	10	14	619	31.86	63.77
$3,000 to $4,999	1	37	133	171	109	33	17	19	520	26.76	90.53
$5,000 to $7,499		5	17	29	38	14	7	5	115	5.92	96.45
$7,500 to $9,999		1	3	7	8	6	3	1	29	1.49	97.94
$10,000 to $19,999		1	1	8	10	3	5	3	31	1.60	99.54
$20,000 to $24,999				1	2	3		3	9	.46	100.00
Total individuals	32	510	485	433	282	88	53	60	1,943	100.00	
Average salary	$1,720.31	$2,021.57	$2,795.88	$3,485.57	$4,143.62	$5,051.14	$4,801.89	$4,689.17	$3,139.55		

TABLE 69.—*Other professional workers—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
$500 to $999	2	11	4	1				1	19	0.97	0.97
$1,000 to $1,999	42	293	114	16	9	5	1	2	482	24.64	25.61
$2,000 to $2,999	17	260	267	66	28	10	5	7	660	33.74	59.35
$3,000 to $4,999	2	46	169	129	107	36	21	23	533	27.25	86.60
$5,000 to $7,499	1	4	22	42	45	15	20	9	158	8.08	94.68
$7,500 to $9,999			2	14	12	8	2	6	44	2.25	96.93
$10,000 to $19,999		1		10	12	9	7	8	47	2.40	99.33
$20,000 to $24,999				4	5	4			13	.67	100.00
Total individuals	64	615	578	282	218	87	56	56	1,956	100.00	
Average salary	$1,894.53	$2,149.19	$2,893.60	$4,718.97	$5,459.86	$6,497.13	$6,169.64	$6,107.14	$3,522.11		

TABLE 70.—*Employees in banking and finance—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
$500 to $999		1							1	0.44	0.44
$1,000 to $1,999	3	29	10	6	3		1	1	53	23.45	23.89
$2,000 to $2,999	1	11	21	8	4	4	2	4	55	24.34	48.23
$3,000 to $4,999	1	5	10	11	10	2	2	4	45	19.91	68.14
$5,000 to $7,499		1	4	7	4	3	5	2	26	11.51	79.65
$7,500 to $9,999				6	3	1	3		13	5.75	85.40
$10,000 to $19,999			1	4	3	3	1	5	17	7.52	92.92
$20,000 to $24,999				3	6	1	4	2	16	7.08	100.00
Total individuals	5	47	46	45	33	14	18	18	226	100.00	
Average salary	$2,200.00	$2,085.11	$3,206.52	$6,594.44	$8,659.09	$8,071.43	$9,833.33	$8,888.89	$5,703.54		

TABLE 71.—*Insurance employees—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
$500 to $999			1						1	0.26	0.26
$1,000 to $1,999	3	42	21	4	4	1			75	19.74	20.00
$2,000 to $2,999		32	31	15	6		3	3	90	23.68	43.68
$3,000 to $4,999		19	29	27	19	7	2	4	107	28.16	71.84
$5,000 to $7,499		1	9	16	16	8	6	3	59	15.53	87.37
$7,500 to $9,999			2	1	8	1		4	16	4.21	91.58
$10,000 to $19,999				1	13	2	3	5	24	6.31	97.89
$20,000 to $24,999				1	1	2		4	8	2.11	100.00
Total individuals	3	94	93	65	67	21	14	23	380	100.00	
Average salary	$1,500.00	$2,396.28	$3,220.43	$4,580.77	$7,231.34	$7,773.81	$7,000.00	$10,532.61	$4,776.32		

TABLE 72.—*Employees in commerce and business—distributed according to their present annual salaries and the number of years since graduation*

Annual salary group	Number of individuals, by years since graduation								Total individuals	Per cent	Per cent cumulative
	1	2	5	10	15	20	25	30			
1	2	3	4	5	6	7	8	9	10	11	12
Less than $500		2	1			1			4	0.07	0.07
$500 to $999	12	25	6	1	1	1	2		48	.88	.95
$1,000 to $1,999	61	641	209	53	24	13	12	9	1,022	18.79	19.74
$2,000 to $2,999	14	485	472	164	103	43	20	23	1,324	24.34	44.08
$3,000 to $4,999	6	95	446	322	245	93	58	44	1,309	24.07	68.15
$5,000 to $7,499	1	11	85	203	216	94	68	50	728	13.39	81.54
$7,500 to $9,999		9	20	82	111	63	45	30	360	6.62	88.16
$10,000 to $19,999		5	11	59	118	97	74	52	416	7.65	95.81
$20,000 to $24,999		1	3	22	58	46	41	57	228	4.19	100.00
Total individuals	94	1,274	1,253	906	876	451	320	265	5,439	100.00	
Average salary	$1,763.30	$2,212.21	$3,368.75	$5,678.26	$7,614.73	$9,154.77	$9,852.34	$10,884.91	$5,366.10		

Table 73 shows the distribution of graduates now employed in commerce and business, exclusive of those in banking, finance, and insurance, according to average annual salaries, years since graduation, and with normal salaries calculated from the data.[4]

TABLE 73.—*Employees in commerce and business, not including those in either banking and finance or insurance, distributed according to their present average annual salaries and the number of years since graduation, with normal salary values calculated from the data*

Years graduated	Number of employees	Average salary observed	Normal salary calculated	Normal gain calculated
1	2	3	4	5
0				
1	94	$1,763.30	$1,763.05	
2	1,274	2,212.21	2,211.90	$448.85
3			2,496.88	284.98
4			2,897.92	401.04
5	1,253	3,368.75	3,390.52	492.60
6			3,908.03	517.51
7			4,410.00	501.97
8			4,884.60	474.60
9			5,331.44	446.84
10	906	5,678.26	5,752.42	420.98
11			6,149.72	397.30
12			6,525.29	375.57
13			6,881.22	355.93
14			7,218.36	337.14
15	876	7,614.73	7,538.45	320.09
16			7,842.75	304.30
17			8,132.41	289.66
18			8,408.46	276.05
19			8,671.84	263.38
20	451	9,154.77	8,923.39	251.55
21			9,163.90	240.51
22			9,394.08	230.18
23			9,614.58	220.50
24			9,826.00	211.42
25	320	9,852.34	10,028.88	202.88
26			10,223.74	194.86
27			10,411.04	187.30
28			10,591.62	180.58
29			10,765.06	173.44
30	265	10,884.91	10,932.15	167.09

When the curve of calculated normal salaries is drawn for commerce and business employees it becomes apparent that graduates with two years of experience earn nearly $450 more than those who have been out of college only one year. The difference between the second and third year decreases to $285. Thereafter the annual differences increase until the maximum $518 occurs between the fifth and sixth years. Annual increments diminish from that point onward.

Employees in the commercial world who have been out of college only one year earn more than $100 less per annum than engineers with

[4] The formula for this group developed by Dr. George W. Hervey was: Average salary equals 100,000 (number of years graduated) $123.5433 plus $5.02933 (years graduated) minus (85.144) (0.8439) (years graduated).

corresponding experience, but the data indicate that beginning with the 5-year group the superiority lies on the side of the commercial employees. The differences in favor of the latter group increase from nearly $400 at 5 years to more than $2,000 in the case of graduates of 20 years or more.

With such high salary scales in the commerce and business group, wide variability above and below normal salaries is to be expected, especially for the older graduates. This variability is shown in Table 74.

TABLE 74.—*Variability of salaries of employees in commerce and business about the normal salary trend*

Years graduated	Normal salary calculated	Average deviation from normal salary	Average range	Index of variation
1	2	3	4	5
1	$1,763.05	$600.30	$1,162.75–$2,363.35	34.05
2	2,211.90	780.05	1,431.85– 2,991.95	35.27
5	3,390.52	1,310.04	2,080.48– 4,700.56	38.64
10	5,752.42	2,857.53	2,894.89– 8,609.95	49.68
15	7,538.45	4,222.16	3,316.29–11,760.61	56.01
20	8,923.39	5,152.02	3,771.37–14,075.41	57.74
25	10,028.88	5,671.40	4,357.48–15,700.28	56.55
30	10,932.15	6,620.04	4,312.11–17,552.19	60.56

Comparison of this table with similar tables for college instructors (Table 48) and engineers (Table 59) will reveal interesting and significant relations that can not be discussed in the space allotted to this study.

PART VI.—STUDENT RELATIONS AND WELFARE

Chapter I.—Introduction

The college or university community is a peculiar and interesting social unit. This is largely true because it is a transitional period of community living. A large proportion of the members of the college and university community come to it with experience only of community living under conditions of considerable control of their activities and interests. Parents, school, and the home community have in large part guided and limited their lives; even under modern conditions of youthful freedom the degree of responsibility placed upon the student prior to his entrance to college is relatively slight. During the period of college and university life he must develop attitudes, interests, and abilities, which will enable him to reenter the community from which he came in very different capacities from those he occupied when he first went to college.

It is a function of the university or college to assist the student in making these changes of attitudes, interests, and abilities. This is done in part only by the academic and curricular activities provided by the institution. Of equal or even greater importance in the process are the material conditions of living, the social atmosphere, and the opportunities for self-expression provided by the institution during the period of college life. The transformation from living under control to living independently can not be accomplished effectively when "institutionalism" prescribes rigidly and imposes by authority conditions comparable to those of the nursery or the penitentiary. On the other hand, the institution that assumes no responsibility whatsoever outside the academic program but throws the immature young man or woman entirely upon his or her own resources, is failing to function in the fullest sense as an educational agency.

One purpose of the college experience is to prepare for participation in the life of a community, whether community is interpreted in strictly local or in national terms. The creation and utilization of self-directed effort on the part of the student must operate in an atmosphere of institutional interest in these matters. Data provided for the survey of student relations and welfare in the land-grant

institutions may be regarded, therefore, somewhat artificially, from the standpoints first, of those activities and services that are furnished by the institution and that are controlled administratively by the institution in the interest of the student's college life, and secondly, those activities that are controlled and operated by the students independently or in conjunction with institutional authority.

In many instances the primary interest of the institution in the individual student's human welfare is dictated by considerations of contribution to the academic and curricular welfare of the student. In other cases institutional interest is merely an expression of common social responsibility for the welfare of the individual or is directed to make definite provision to encourage individual initiative in relationships other than those of class work. The first section of this report will deal with the institutional welfare and advisory staff designed to accomplish these ends. It is concerned with the housing and feeding of students; with personnel systems; with the health service; with the means used to introduce and orient new students into the college community; with provisions for physical education and athletic activities; with religious interests and institutional convocations; with the aids provided to enable students to meet their academic and financial responsibility; and with the assistance given when the student leaves the institution to take up his work in the outside community. The second portion of the report will deal with the student organizations intended for the personal benefit of their members, for the benefit of the college community, and for the benefit of larger phases of community life.

Chapter II.—Welfare and Advisory Staff

The student personnel work in all the land-grant institutions centers in two offices, those of the dean of men and of the dean of women. Even though many of the activities that concern student welfare are directed by other persons and though several institutions have a separate department of personnel under a director who is supposed to centralize all of the personnel work of the institution, the dean of men and the dean of women maintain the closest direct contact with the entire student body. It is through their offices that the work of the student organizations is conducted. The measure of the success of these two administrators in any institution may well be judged by the amount of voluntary cooperation requested from them by the various organizations of the campus. A study of the organization of the offices of the dean of men and the dean of women is essential.

Office of the Dean of Women

Since the office of the dean of men is a more recent organization than that of the dean of women, it may be well to take up the latter first. Reports concerning student relations were received from 44 institutions. Of these, two have no women registered and three have so few as to be negligible. Thirty-nine of the land-grant institutions maintain the office of the dean of women and give this title to the woman who has general supervision of women students. The earliest date of establishment of this office in the land-grant institutions was 1897. Two institutions report the establishment of the office in that year. It was established before 1913 in half of the institutions reporting.

The salaries of the deans of women range from $2,000 to $6,000, with the median at $3,600. In all but three of the land-grant institutions this salary is paid entirely from State funds; in three, it is paid partly from student fees.

The qualifications for this office are stated in general terms and with little definiteness. A more significant picture is obtained by studying the actual preparation of women who held the office in 1927. The data furnished by the land-grand college survey has been supplemented by valuable material gathered by Miss Madge McGlade, of Iowa State College, who made a study of the office of dean of women in the land-grant institutions in 1927. The age

range of deans of women is stated as from "under 30" to "45 or above," with the median at 45. Only 4 deans of the 39 reporting were under 35 years of age, and only 15 of the entire number were under 45 years of age. This would indicate that those who select the person to fill the office of dean of women in the land-grant institutions are not inclined to select her from among the lower age levels, perhaps because they feel that actual experience in living is necessary to give sound judgment in dealing with the problems that come to this office for solution. On the other hand, too old a woman may not be sympathetic with the problems of present-day youth. After all, however, the matter of age is relative, not chronological, and does not depend upon actual years.

It is quite evident to anyone familiar with the earlier policy of administrations in filling this position that a real change has taken place in the point of view regarding the training that is necessary. Only five of the institutions failed to report some degree for the dean of women. One had the training of a graduate nurse, 8 held only the bachelor's degree, 22 held the master's degree, and 6 held the Ph. D. A number of those holding master's degrees had done one or more years of graduate work beyond this degree, although not sufficient to complete work for the Ph. D. Twelve had taken some one of the special courses offered in various colleges on the work of the dean of women. Of these the greater number had taken their work at Columbia University in the highly theoretical course offered there.

In faculty rank, the recognition was generous. Of the 39 who reported, 38 were members of the general faculty, though 7 were given no actual professorial rating. Ten held full professorships, 6 associate professorships, 5 assistant professorships, and only 1 was ranked as an instructor. In addition to this list, 2 were rated as deans of divisions, 1 as dean of the college, 2 as heads of departments, and 1 as chairman of the faculty in the absence of the president. Twenty-nine reported that they held equal rank with the deans of the colleges in their institutions and were members of the board of deans. It is clear that the dean of women in the greater number of the land-grant institutions is in the upper ranks of the faculty and has both academic and administrative recognition.

The duties of the office are not yet any more standardized than are the qualifications of appointees. Certain functions, however, stand out clearly. Practically all of the deans of women give full time to the work of their offices. Work with student organizations, direction of the social activities of women students, individual student advising and discipline, are the duties most frequently listed by the reports; supervision of housing, feeding, and scholarship, orienta-

tion of freshmen, student employment, issuing of excuses, administration of loan funds, and placement work, follow in the order named. Two deans mentioned that they supervised the physical education for women students, although in only one institution was the dean of women head of the physical education department. Two mentioned that they had certain responsibilities in regard to the religious education of women students. The reports on the actual distribution of time show that more than one-half of the deans of women spend 50 per cent or more of their official day in individual conferences and advising with women students.

The order of the following list indicates the relative importance of the different functions as reported by the deans of women in the Survey of Land-Grant Colleges. (1) Supervision of social activities and discipline; (2) work with the student organizations; (3) individual student guidance; (4) supervision of housing and feeding; (5) supervision of scholarship; (6) handling of excuses for absence and handling of employment of women students; (7) supervision of individual student health and administration of loan funds for women students; and (8) placement work, supervision of physical education, and supervision of religious education of the women students. According to Miss McGlade's report supervision of social activities consists to a very great extent in granting college permits, in keeping records of social affairs where both men and women are guests, and of planning with the students certain parts of the major social program for women on the campuses.

While the dean of women in the land-grant institutions has a good deal to do with the discipline of women students, 28 of the institutions replying to Miss McGlade's questionnaire handle this through a discipline committee of which the dean of women is a member. In 11 of the institutions discipline is solely in the hands of the dean of women. Three of the institutions did not reply on this point.

There are many advantages in the committee method of handling student discipline. Perhaps the most obvious is that no individual has to bear the brunt of rendering unwelcome decisions upon individual cases. There is a real advantage also in the fact that more than one person brings experience and judgment to bear upon disciplinary problems. Whether a committee is more likely to render justice than an individual depends entirely on the constitution of the committee and the disposition of the individual. On the other hand, there are many cases in which the benefit to be gained by the offender through discipline is more apt to ensue if the case is handled by a single person to whom the student can talk in

confidence. This is particularly true of women students. Many times appearance before a committee of strangers is in itself a punishment quite out of proportion to the offense. The committee may overemphasize the student's misdemeanor and find itself unable to take into consideration motives and circumstances which a student can hardly explain to such a group. Each offense is an individual case and the wisest treatment is to recognize its individuality and, in the light of all the circumstances, to mete out the discipline needed as a curative measure. The tendency is to have no set of penalties that must be attached to a corresponding set of offenses. While, therefore, it is probably the wisest procedure to have a discipline committee to which cases may be appealed if the student so wishes, probably the first handling should be done, in the case of women students, by the dean of women herself, and the discipline committee should be used as a court of last appeal. At this point it may be well to add that the presence of the dean of women on the discipline committee that deals with all cases in the institution, those involving men students only, as well as those involving women students, is very desirable. It gives her wider knowledge of the situations on her campus. It is also a real gain for the committee to have a woman's point of view on the problems of men students.

There are few student offenses which involve one sex exclusively, and in coeducational institutions it sometimes seems that all the sins are like those of Kipling's Tomlinson, "The sins that ye do by two and two." Tables 1 and 2 indicate something of the nature of the offenses for which discipline is applied and the frequence of their occurrence.

TABLE 1.—*Discipline of women students* [1]—*Number of women on probation, suspended, or expelled for specific offenses, 1928*

Institution	Enrollment resident students	Poor scholarship		Cheating		Stealing		Drinking		Automobiles		Sex		Debts		Other	
		Probation	Suspended or expelled	Probation	Suspended or expelled	Probation	Suspended or expelled	Probation	Suspended or expelled	Probation	Suspended or expelled	Probation	Suspended or expelled	Probation	Suspended or expelled	Probation	Suspended or expelled
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Alabama Polytechnic Institute	133	9			1												
University of Arizona	783								1				12				2
University of Arkansas	562					2											
University of California	9,699		230	20													
Connecticut Agricultural College	161								2							9	
University of Delaware	311																3
University of Hawaii	228		6														
University of Illinois	3,370	337	67								1					52	13
Purdue University	659	54	23	3													
Iowa State College	1,334												1				
Kansas State Agricultural College	1,124			2	1			2									
Louisiana State University	569	55	25		2												
University of Maine	311	39	2										1				3
Massachusetts Agricultural College	127	10	14														
University of Minnesota	4,745	414	54		7												
University of Missouri	1,451		40	2	1		1		2		2		2				
Montana State College	293	7	1									1					
University of Nebraska	2,925	140	43														
University of Nevada	420					1										4	
University of New Hampshire	501	14	9														
Rutgers University	1,045				1				1	6	1					1	12
Ohio State University	3,406	350	160														
Oklahoma Agricultural and Mechanical College	1,040									2		1				2	
Oregon Agricultural College	1,223	39	17				1		1				1				
South Dakota State College	309	4															
University of Tennessee	1,002		50		15		1		1				3				
Agricultural College of Utah	501	42	20				2					1		1			
Virginia Agricultural and Mechanical College	49				2		2										
State College of Washington	1,131							4	1				2		3		
University of Wisconsin	3,646	288	100	1	3			6	5				3			4	3
University of Wyoming	534												2				
Total	43,592	1,802	861	28	33	3	7	12	14	8	4	3	27	1	3	72	36

[1] 2,914 students, or 7 per cent, were disciplined.

TABLE 2.—*Discipline of men students* [1]*—Number of men on probation, suspended, or expelled for specific offenses, 1928*

Institution	Enrollment resident students	Poor scholarship		Cheating		Stealing		Gambling		Drinking		Automobiles		Sex		Debts		Other	
		Probation	Suspended or expelled	Probation	Suspended or expelled	Probation	Suspended or expelled	Probation	Suspended or expelled	Probation	Suspended or expelled	Probation	Suspended or expelled	Probation	Suspended or expelled	Probation	Suspended or expelled	Probation	Suspended or expelled
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Alabama Polytechnic Institute	1,481	323	28		3	2					1								
University of Arizona	1,250							1		3									
University of Arkansas	1,016	6	6			2				3	6					1			
University of California	9,051		217	15	12	1	6			5	1								
Colorado Agricultural College	920	6	2				1												
Connecticut Agricultural College	367				2						1		1						1
University of Delaware	396		28		1														10
University of Florida	2,062	75	37	6	4		2				2								66
University of Hawaii	444	4	46																
University of Illinois	9,368	1,499	562		21		3		9		9		25					137	41
Purdue University	3,171	566	260	8	7						5		3						
Iowa State College	3,057				1		1			5	7								
Kansas State Agricultural College	2,073			1	3		2			2	3								6
University of Kentucky	1,790			25	2						7						1		
Louisiana State University	1,401	199	164		5		3				3								
University of Maine	1,048	299	47								1				1				3
Massachusetts Agricultural College	466	38	41	4	5						4								
Massachusetts Institute of Technology	2,662	2	146	7	1		1			1									
University of Minnesota	7,807	1,189	283		5														
University of Missouri	3,329	219	127	2	9		5	2		9	8				3				2
Montana State College	718	65	21		1		1			9	1				2				
University of Nebraska	4,032	559	222	4				2		10	6				2				
University of Nevada	582									7	3								
University of New Hampshire	1,157	92	89		3		3				1								
Rutgers University	1,640	21									2								

North Carolina State College	1,527	27	104		2		2			6	3				2			1	3
North Dakota Agricultural College	829	2		2						5								10	
Ohio State University	7,816	900	325																
Oklahoma Agricultural and Mechanical College	1,773	3	2			2	1	2	1	17	8	1	1					3	
Oregon Agricultural College	2,595	169	101		4						6							3	3
Rhode Island State College	411	22	13																
Clemson Agricultural College	1,212				4														6
South Dakota State College	608	92					1	2		4	2						1		
University of Tennessee	2,112		160		33		5		6		10		2		5		3		
Agricultural and Mechanical College of Texas	2,548	60		1	1		11				2								15
Agricultural College of Utah	721		33				1								1	2			
Virginia Agricultural and Mechanical College	1,217	139	49								1							14	11
State College of Washington	1,871						1			6	3	2			2		1		
University of Wisconsin	6,026	733	328	3	7	6	6		1	6	3				3	1	3	7	4
University of Wyoming	669														2				
Total	93,223	7,309	3,441	78	136	13	56	9	17	98	109	3	32	0	23	4	9	176	171

[1] 11,683 students, or 12.5 per cent, were disciplined.

Next to the amount of time that the dean of women gives to individual conferences and to social and disciplinary matters comes the amount of time that she gives to work with organizations on the campus. The most important of these is the student-governing organization known on almost all campuses as the Women's Self-Government Association. In 34 of the land-grant institutions reporting on Miss McGlade's questionnaire, there was such an organization, and in 28 it worked in very close cooperation with the office of the dean of women. Unfortunately no question was asked as to the dean's actual membership on these 34 student-government boards. A study made by Miss Thyrsa Amos, dean of women of the University of Pittsburgh, in 1925, and presented to the National Association of Deans of Women at the meeting of that year, shows that the constitutions of the great majority of the colleges where a women's student-government association existed at that time provided for the presence of the dean of women ex officio as an advisory member of the governing board.

The same thing is true of the dean of women's relation to the governing body of the sororities. Thirty-four of the land-grant institutions have sororities on their campuses, while eight have none. In 34 there is a Pan-Hellenic organization which arbitrates matters between the sororities. The dean of women in many of these councils sits with the students in an advisory though not a voting capacity. In 26 of the land-grant institutions the dean of women approves the residence of the students in sorority houses, approves sorority chaperons before their appointment, and in general supervises the living conditions in the sorority houses just as she does in other approved residences for women.

It is interesting to see that the old idea of the dean of women as a sort of glorified housemother, busying herself almost exclusively with the physical conditions under which the women students live, is gradually disappearing. In only 17 of the land-grant institutions does the dean of women still reside in the dormitory. In the rest her living conditions are what she herself may choose to make them. In 20 of the land-grant institutions the dean of women, or some one in her office, assigned the residents to their dormitory rooms, while in 10 she did not concern herself with this particular function.

In nine it was a duty very definitely assigned to other officers of the institutions, such as the director of dormitories, the head resident in each dormitory, and in one institution, the registrar. Three of the land-grant institutions have no dormitories and two made no report on this matter. In only nine cases did the dean of women purchase the supplies and furnishings of the dormitories, although in seven additional ones she advised with some other institutional officer whose duty it was to make the selection. In 22 she did not concern herself with this matter; in 3 there were no dormitories and 1 did not reply. In only 5 of the land-grant institutions did she have anything to do with the collection of dormitory rents, while in 27 this was entirely the work of other officers.

The former preoccupation of the dean of women with the institutional dormitories tends to be something of the past. In several of the institutions where the dean of women apparently had final decision concerning the assignment of dormitory rooms and the purchasing of furnishings, the replies indicated that some assistant in her office did the actual work, and that the dean stepped in only when difficulties arose in special cases. Much more of the time of the dean of women is given to matters which have a direct bearing on the academic life of the institution.

In 29 of the land-grant institutions replying to Miss McGlade's questionnaire the dean of women approved the outside residences in which the women students were housed, while in 4 she did not. In three additional institutions it was the work of some one in her office. In 26 of the institutions the placing of women who had to earn their way by working for room and board was in the office of the dean of women, although in only a few cases was it the work of the dean herself.

The dean of women sits on a great many committees in the institutions. She was a member of the scholarship committee in 17 of the land-grant institutions by virtue of her office; in 11 she was not a member of the scholarship committee; and in 14 her membership was not ex officio but an individual faculty appointment.

In 13 of the institutions all of the grades of women students were kept in her office, while in 17 they were not; in 4 the grades of the poor students only were kept there; in 1 the women student averages were in her office; in 1 they were about to be filed there; in 2, while not kept in her office, were readily accessible; and in 1 she handled only the grades of the freshmen and sophomores and of poor students in the upper classes; in 3 there was no reply to this question.

In 13 of the institutions there was a social committee variously named, such as "the committee on student life," "the faculty committee on social affairs," and "the joint student and faculty committee on social affairs." The dean of women was a member of the committee under whatever name it functioned in the institutions. She was frequently chairman of it, apparently dividing this responsibility about equally with the dean of men in the institutions which have such an office.

The registry of all social affairs in the institution and the approval of chaperons were in her office in 11 of the institutions reporting, and in 13 in that of the chairman of the social affairs committee. The two institutions make no effort to register social affairs, regarding that as a purely student enterprise. One does not register or approve chaperons for college social functions, but the other does so through the office of the dean of women.

The deans of women were asked to indicate how close their cooperation was with the scholarship committee, with the medical department, with the physical education department, and with the psychology department. The closest cooperation was indicated

with the physical education department, 37 replying that they worked very intimately with the directors of physical education for women. Cooperation with the medical department and the scholarship committee was about the same in all the institutions, 33 indicating that it was very close. The psychology department seemed to be used less frequently by the office of the dean of women, as only 25 answered that they had close cooperation here and 2 answered that they had no cooperation; 15 did not reply.

Through knowledge of the living conditions of the individual student, her social affiliations, her general health, and her vocational interests, the dean of women can aid the student on the scholastic side perhaps more effectively than anyone else in the institution. For this reason it is encouraging that she is a member of the scholarship committee in 31 institutions. If she is the right person for the position, she should be a member of the scholarship committee on every campus; if she is not adapted to work with the scholarship committee, she probably is not the right person for the position.

It is a little surprising to find that the deans of women report less complete cooperation with the psychology department than with the other departments of the institutions, since the psychological tests which are given each student on entrance to the institutions are, for the most part, recorded in the department of psychology and are available through that department. It would seem that the cooperation between these two departments should be strengthened.

The teaching done by the deans of women in the land-grant colleges is not heavy. Only 6 reported that they taught more than six hours per week, while 14 reported that they taught less than six hours per week; 22 did not reply. The fields of teaching were varied. Nine deans taught in the English department, 1 in Latin, 4 in the social sciences, 5 in home economics, 1 in education, 2 in hygiene, and 1 in vocations. At the time in American colleges when the adviser to women students was known by the title of dean, the advocates of her academic influence were clamorous in insisting that she should teach and that she should teach in fields where her work would be on an equality with that of men professors. This insistence aimed to magnify her academic importance and to minimize her function of "counter of the bed sheets." The women who have occupied the position of dean of women in the land-grant institutions, however, have proved their value administratively to the point where it is now no longer necessary for them to assert their academic dignity by maintaining a teaching program. The consensus of opinion among deans of women in recent years seems to be that while there is no objection to her teaching, if she finds that her other duties permit her proper time for preparation and for

meeting her classes, her more important functions are outside the classroom and may, if fully met, preclude the possibility of her keeping regular class hours.

The growth of the work in the office of the dean of women has demonstrated that no one person can handle it unaided. Consequently in the land-grant institutions the dean is given assistants.

Eight institutions give the dean of women an assistant dean and a secretary; five, an assistant dean, a stenographer, a secretary, and student help; five, a secretary only; four, a stenographer only; two, an assistant dean and secretary combined; one, an assistant dean and student help; one, an assistant dean; and one, a social director who acts as assistant dean; one, the part time of three stenographers; one, two assistant deans and a half-time stenographer; one, a secretary and student help; while one dean reports a full-time social director, a full-time director of housing, a full-time secretary, a part-time vocational adviser, and student help. Ten of the land-grant institutions gave no answer on this question of office force.

In 40 of the land-grant institutions the dean of women had a private office and in 33 this private office was equipped with a waiting room. The physical setup of the office has a very direct bearing on the efficiency of work with students. It would seem to go without saying that the office should be private, so that interviews may be held in confidence. This can never be accomplished where other students are in the same room waiting their turn for conference. Of course this statement is just as true of student interviews with the dean of men, the health officer, the psychiatrist, and in many cases the dean of the college in which the student is enrolled, as it is of interviews with the dean of women. A waiting room is a necessity for another reason also. The assistant to the dean, whether she be an assistant dean, a stenographer, a secretary, or only a student helper, can dispose of the many random inquiries that come to the office, so that the time of the dean herself may be available for students who need her advice and judgment. Moreover, it is an excellent thing if the dean's private office can be equipped with two exits, the one leading through the waiting room, and another which may enable a student who has had a disturbing interview to leave without running the gauntlet of other waiting candidates. If it is a possible thing, it is highly desirable that the office should also be equipped with private toilet facilities so that a student may repair any signs of her stormy emotions before she has to face the outer world.

In passing, one might add that the dean of women will get far better results with her students (and one suspects that this will hold true to the dean of men also) if her office is furnished in a way that makes it not too obstrusively businesslike, and if the chairs where the students are to be seated are disarming in their comfort and invitation to relaxation. Since the dean of women's approach to student

problems is necessarily highly personal, her office and its settings may be the most effective means of drawing out a student's confidence and winning her friendship.

Since the success of the dean of women depends about as much upon the confidence of the faculty in her judgment as it does upon the confidence of the student body in general, she must maintain close relations with the other academic officers and with the faculty. The list of academic officers with whom she shares some of the student advisory work is legion. They range through the whole faculty—professors, associate professors, assistant professors, and instructors, down through a long list of nonfaculty personnel.

Office of the Dean of Men

Although the practice of assigning to a single college official the duties of a dean of men is not nearly so general in the land-grant institutions as is the practice of assigning to a dean of women the corresponding duties for women students, many of the statements concerning the office of the dean of women apply with equal force to the office of the dean of men. The idea that the personal relationship between faculty and men students needs embodiment in a single officer is of very late origin, and by no means so widely accepted as is the recognition of the need for a dean of women. Consequently, in many of the land-grant institutions the deans of the colleges and the deans of divisions are still carrying on this work fairly effectively, especially where the student body is small. A tone of almost belligerent denial of the necessity for centralization could be detected in some of the statements furnished for survey purposes.

In marked contrast with the clear-cut enumeration of the duties of the dean of women and definition of her functions, the deans of men are apparently groping to discover just what their justification for existence may be. The most illuminating material is found in the proceedings of the annual meetings of the National Association of Deans of Men. Here is evident a very masculine sentimentalizing of the work and of the relations with students, which vanished from the discussions held by deans of women a score of years ago. Two extracts from papers presented by the leading deans of men, no longer than two years ago, set the key for practically all the discussions. Stanley Coulter, dean emeritus at Purdue, at the 1928 meeting epitomizes the duties thus:

> It is utterly impossible to tell what the function of the dean of men may be. He is a personality, not an officer. If he is not that he will be utterly unsuccessful in his work as a dean. He is the human element in the university mechanism.
>
> The dean of men should not hedge his office work with whole tiers of filing cabinets and card indexes until the machine hides the purpose. There are

some deans who put everything down on the records. I am sorry for them and sorry for the students under them. I have no time to make records and I do not want records.

The following year, 1929, Dean Culver, of Stanford University, introduced his paper as follows:

Speaking very frankly I do not see how any one can define or set forth such duties. It is as impossible as defining the legal and social and parental duties of a father, or the duties of an older brother or friend. Where fathers have sometimes failed we must try to succeed; where older brothers have been neglectful, or thoughtless or selfish we must be generous, alert, and thoughtful; where friends have lasted only while the sun shines, we must last throughout the years.

It will be seen that these statements are idealizations which are expressive of the actual accomplishments of the men who made the statements. However, no person can really permeate a college atmosphere—his only method of reaching students is through establishing contacts whereby individuals come to him, and to do that he must have definite functions and duties, through which he can make his influence felt. The dean of a college of engineering in a land-grant institution reported that he personally supervises the programs of all his students, that he manages a loan fund, that he interviews all students whose work falls below standard, that he establishes contacts with the business world for placement of his graduates—and so on indefinitely—and that he performs all the duties of a "dean of men" in his college, and sees no room for such an official in addition.

When the actual status of the office of dean of men on the campuses of the land-grant institutions is considered it is found that two were established in the years 1901 and 1902, respectively. Only 9 deans of men were appointed in the years from 1901 to 1919, while 20 have been appointed since the latter date. Eighteen institutions have no dean of men, but the duties are distributed among various other officials ranging from the deans of major divisions to the Y. M. C. A. secretaries. One institution reported that the latter performed many of the duties of the dean of men very satisfactorily.

The deans of men were asked to report on the qualifications for the holder of the office. Replies were either so noncommittal as to give no picture or so vague as to indicate that they were largely idealizations. However, seven institutions reported that the dean of men must be a member of the faculty holding full professorial rank. The qualities that he should possess were variously listed, the most frequent being sympathy and ability to counsel with young men. The vague term "personality" was given as a characterization repeatedly. The high light in this section of the report came from the institution which stated that the dean of men must be "supreme in the academic world, with all the usual quali-

fications of the best professionally, a combination of Sherlock Holmes and the Angel of Mercy." Fairness, a sense of justice, ability to work with the faculty as well as with students, "a proper moral attitude," courage, initiative, and a sense of humor, were other qualifications that were mentioned many times.

The duties of the office vary greatly in the institutions, but as was found with the deans of women, the greater part of the time of the dean of men is given to personal conferences with individual students on scholastic, financial, physical, and emotional problems.

In checking the major duties of the office, work with student organizations was mentioned by 29 deans of men; guidance of students and discipline by 28; social activities by 27; handling of excuses for absence from class by 23; work in connection with the orientation of freshmen by 22; work with scholarship committees by 22; the handling of student loans by 18; some supervision of housing and feeding by 15; concern with student health by 13; placement work by 11; employment work by 10; religious education of students by 5; and cooperation with the physical education department by 2. Though this follows roughly the order of frequency in this same group of duties of the dean of women, it varies from it markedly in some respects.

The deans of men reported the percentages of members of the four college classes that they interviewed.

In 10 institutions they interviewed between 75 and 100 per cent of the freshmen, while in 8 they interviewed between 20 and 50 per cent. In only 3 institutions was the percentage between 75 and 90 in the sophomore class, while in 14 institutions it was between 10 and 50 per cent of this class. The interviews with the junior class were not so frequent in any of the reports. Apparently the need of this group of students for personal contact is not felt to be so urgent. The number interviewed rose again in the senior group, ranging between 5 and 50 per cent in 13 of the institutions and up to 75 per cent in 3 of the institutions. One dean reported that while it was impossible to state what proportion of the students in various classes were interviewed, he felt that he came in contact with every man student at some time in that student's college course. The list of officers with whom the dean of men cooperated was the same as that for the dean of women.

The salary of the dean of men ranges from $1,200 to $8,000 with the median at $4,500. The salary in all but four of the land-grant institutions is paid from State funds. In two of the land-grant institutions a small portion of it is paid from student fees, and in 2 others it is paid wholly from miscellaneous receipts rather than from State funds.

Most of the 29 deans of men had fair equipment in the way of clerical and stenographic help, 83 clerks and stenographers being distributed among them. Twenty-five had assistants who were above the rank of clerk. All of the deans of men in the institutions reporting had private offices, but a private waiting room was provided for only 24 of the 29. The recommendation can not be made too strongly that the office of every dean of men be entirely private, and that there be a waiting room provided where his stenographic and clerical assistants may have their desks, so that the dean himself may hold uninterrupted and confidential conferences with the students who need to consult him.

Typical statements of the duties of the office of dean of men indicates a tendency to make of the office a sort of collegiate catch-all,

where the issuing of automobile permits and the collection of student debts may crowd out the real functions such as cooperating with student self-government and counseling with student organizations. Many of the tasks assigned would seem to aid in only the slightest degree in making the dean of men "the human element in the university mechanism." It would seem that deans of men in the land-grant institutions have not yet analyzed their jobs and defined their duties as clearly as have the deans of women. In the institutions where the deans of men have had a clear conception of their offices have refused to be loaded with irrelevant duties and have defined their functions and devoted their energies to the very necessary and legitimate tasks of this important office, the deans are really liaison officers for the whole institution. They do "succeed where fathers have sometimes failed"; their lasting friendships with alumni who were their students are the best justification their office could ask.

Chapter III.—Personnel Service

The term "personnel service" has been carried over into the colleges from industry, where it came into prominence just after the World War. Its emphasis in industry, however, is quite different from that in the college and university. Industry's first interest in personnel is in increasing the efficiency of the individual worker in order that the organization may benefit. For this reason industry uses personnel work in selecting, teaching, lessening turnover, conserving health, and providing recreation for its workers. The benefit to the individual worker is incidental; the benefit to the industry paramount. When colleges took over this type of work, however, the emphasis was immediately changed. The fundamental aim in personnel work in the college is that of service to the student as an individual, and its entire organization centers around this aim. So fundamental is this conception of service to the individual student that the form of organization is entirely secondary to the actual accomplishment. For this reason it is not particularly discouraging to find that only seven of the land-grant institutions report a unification of this work into one administrative department.

If the work in the college is to be well done for the individual student it must permeate every department of the institution. It must enter into the student's selection of courses, his relations with his individual instructors, his choice of his life work, and even into such seemingly unrelated things as his own emotional adjustments and physical condition. Because this is true it is almost impossible to say definitely that only certain college officers are personnel officers and that others are primarily officers of instruction. It is equally impossible to draw a sharp line of distinction, as some attempt to do, between vocational and educational guidance and advisement, since they are closely tied up in the individual student's experience.

Examination of the data collected shows that personnel work, so-called, is still in its infancy as a separate function in the land-grant institutions. Of the seven institutions reporting single administrative departments covering all of this work, only four employ a single director of personnel whose work covers the whole institution.

On the other hand, 13 institutions report that personnel service is definitely incorporated in the administrative policy and 7 others indicate that they hope to establish such work in the near future. Several of the institutions where personnel service is decentralized assert that from the standpoint of the whole institution they consider decentralized service more effective than when it is confined to a central office.

All of the institutions reporting definite personnel work finance it through general administrative funds, although two supplement this by gifts from industrial associations. In the institutions where the work is decentralized and at the same time effective, there are many persons in different positions in the college engaged in it. Those most frequently mentioned are the deans of the various schools, the deans of men and women, a group of faculty advisers especially designated, a faculty committee on personnel, the registrar, and members of the departments of psychology, education, and engineering. Where the persons designated are members of the faculty, an explanatory note in many cases indicates that they have been chosen because of their interest in it, and their fitness for rendering this service to their students

The functions covered by personnel work fall roughly into the following classifications: Selection of students, classification of students, guidance of students, maintenance of case histories and records, research studies, and placement service for students.

In 30 of the land-grant institutions part of the personnel work consists in giving various tests and measurements to individual students, either upon entrance or shortly thereafter. These cover standard tests of mental ability, of vocational aptitudes, and of subject matter in the fields of English, foreign languages, history, mathematics, and science. These tests are used largely for the purpose of sectioning classes, although they are also available to the proper officers for student advising; in some few cases they supplement other tools of admission, but in no case are they the sole criterion of entrance. In many cases they are useful in checking student records, particularly those of failing students. Comparatively few of the schools are making wide use of them in experimental work; in fact only six report definite studies that have come out of their collection of this mass of information.

Apparently the personality factor has received comparatively little attention in this mass of measurement. Only 10 of the land-grant institutions make records of personality measurements obtained from sources of such varying reliability as former teachers, friends, business references, employers, ministers, deans, other students, and the student himself. Two institutions report that they give a per-

sonality test to all students. Some of the institutions also report that they make an attempt to rate students on extracurricular activities, as indicated by the deans of the colleges, the dean of men and the dean of women, directors of athletics, dramatics, music, forensics, and various clubs, and the supervisor of teacher training. These extracurricular ratings apparently are used almost entirely in giving information to prospective employers concerning the student's leadership.

The first basis of guidance is, of course, the collection of information about the individual. Who in the land-grant colleges decides what information shall be gathered? This is indeed an all-inclusive list, ranging from the president of the institution through the deans, heads of departments, personnel committees, faculty members, registrar, and the pyschology and education departments. These officials not only decide what information shall be gathered, but also what means shall be used to obtain the information desired. They also decide the form in which the information shall be recorded and who shall be its custodian. In 31 of the land-grant colleges all freshmen are given psychological tests during their first month in the institution; in five institutions such tests are not given.

Where they are given they are administered under the department of psychology in 14 schools, under the department of education in 11, under the personnel committee in 3, under special officers in 2, and under the dean of men in 1. In only 10 of the institutions are the subjects advised of their psychological rating and in only 5 are they retested while in college, though a number of institutions indicate that occasionally in special cases they retest individuals.

Those apparently who use the material gathered in psychological tests most frequently are the deans of the colleges, the deans of men and the deans of women, the faculty and administrative officers actually concerned with the individual student, prospective employers, and industrial representatives. The direct connection between personnel work and placement is indicated by the inclusion of the two last-mentioned groups.

While the questionnaire sent to the land-grant institutions attempted to draw a line of distinction between vocational and educational counseling, the replies from the institutions indicated that it is impossible in practice at the present stage of development to separate these two types of service. With the exception of the five institutions having a personnel officer, the work coincides or overlaps so consistently, it is clear that in the minds of the people actually doing it there is no distinction between the two types of advisement. Several of the institutions mentioned supplementary officers who served at least part of the student body. The University of Minnesota is a case in point; in connection with the office of the dean of women there is a part-time vocational counselor whose services are available

to all women students of the university. Sixteen institutions report that from 1 per cent to 75 per cent of their faculties are assigned to counselor work.

It is obvious that if a good job is to be done in advising a student educationally in the selection of his studies and in the choice of his major, the person who does that advising must also have some knowledge of the vocational bent of that particular student, the lines of work that will be open to him after he graduates, his special aptitudes for certain types of work, and the requirement that these types of work set up. The qualifications of the vocational adviser as concurred in by the institutions reporting were: (1) A pretty broad knowledge of physchology including some familiarity with mental hygiene problems that need to be referred to specialists; (2) a good background of sociology; (3) a wide range of occupational and vocational information, including such technical matters as the requirements for admission to certain professional schools; (4) knowledge of and sympathy with the student's point of view so that the counselor may win his confidence in their contact.

Only 14 of the institutions seemed optimistic as to the motivation of the student's work in relation to his future vocational choice. They reported that all their students planned their courses purposefully and correctly under guidance. Twenty institutions reported negatively on this point; yet 25 reported that such choice was necessary in determining the selection of courses, and only one indicated that this selection could be postponed beyond the close of the sophomore year. A large number required it at registration; 10 indicated that it must be made by the end of the freshman year; 11 by the end of the sophomore year. Thirty-three institutions inform all of their students concerning graduate schools and opportunities for further study, and 34 inform them about graduate scholarships available.

The vocational guidance work begins very early in most of the institutions. Seventeen indicate that they start in the freshman year, and only four delay it until the senior year. In 24 the students seek this information voluntarily. Otherwise the means of getting the information before the students seems to be largely by lectures, by mimeographed or printed analyses of vocational opportunities, by college classes in occupations, by summer try-out courses, and by vocational libraries. A number of the institutions state that the work in vocational and educational guidance is coordinated with the regular classroom work, and a few imply that a connection is made between vocational guidance and the extracurricular activities of the students. While a discussion of the placement service, because of its close connection with both educational and vocational guidance, might well be inserted here, it seems better to treat that at a later

time, since it is directly concerned with the life of the student after he leaves the institution.

The land-grant institutions do very little upon problems of guidance. The colleges have for years been obtaining and filing away vast numbers of records, a source for limitless research, that, rightly used, might throw much light on many of their unsolved problems. Yet only six of the land-grant institutions report research studies based on this material which have given reliable correlation figures with student records. The majority of the institutions have not even used these records to find the replies to the questions on causes of elimination of college students. While a statistical study would probably show that the usual guesses concerning causes for elimination are not far wrong, they remain after all, mere guesses.

It is clear that the importance of personnel work for the sake of the individual student's success, both in college and in his after life, is just beginning to be realized. Although some guidance work has been going on for 21 years in the elementary and high schools of the country, the colleges have apparently just awakened to its bearings upon their objectives. The necessity for more conscious work along this line is evident from the haphazard answers to many of the questions asked in connection with this section of the survey. The trend, however, would seem to be away from centralization of the work rather than toward it. On the whole this is probably advisable, for with the growth of the institutions it is out of the question for any one man or group of men to render so many-sided a service to the individual members of a student body. It is probably wise, therefore, that the work should be studied from the functional viewpoint and distributed among those members of the administrative and teaching staff who can best perform it. If it seems that special officers should be added to the already existing staff, their relationships to that staff and their special contributions should be studied in the light of the needs of the individual institution. Personnel work has so direct a bearing on the life of the individual student and promises so much in making more effective the work of the whole institution that too much cannot be said for the policy of making every individual who comes in contact with the students aware of his share in helping them to find themselves; in other words, each individual of the staff should be consciously a worker in the personnel department.

Chapter IV.—Housing and Feeding of Students

The physical conditions under which students live while they are at college or university are fully as important as the intellectual stimuli to which they are exposed. The influence of surroundings may be unconscious but it is none the less all pervasive. The colleges have an opportunity of unfathomed richness here, not only in providing comfortable and hygienic living conditions in which their students can do their best work during their four college years, but also in giving them the kind of surroundings and atmosphere that will help to build character and to cultivate appreciations of fine human relationships.

The day is long past when any college can assume that its students all come from a background of cultured homes. One may question whether that day ever existed for the land-grant institutions. Today, certainly, it is truer of these institutions than ever before that their students are drawn from homes that represent every grade of social background, from the mining community of the North, where the first-generation immigrant still lives with his family of 8 or 10 children in the crudest of 1-room cottages, or the correspondingly humble home of the southern mountaineer or the western rancher, to the most elaborate mansion of our cities with its retinue of servants and its elaboration of living. The only common denominator for homes of such diverse standards may well be that the students who come from them are actuated by the same desire for an education. The common experiences of living which students from all these types of homes may share in their four college years should be the greatest influence toward the ideal of democracy, and the college or university can not refuse to accept responsibility. Its students are going to live more hours outside the classrooms and the laboratories than within them. The hours outside are fully as potent for the student's future character and contribution to society as are the hours which the institution controls through its courses of study. When the land-grant institutions are compared with the privately endowed colleges and universities of the United States the meager provision which they have made for the living conditions of their students is most striking. Although the majority of the land-grant institutions draw their main support from State appropriations, and State legis-

latures are notoriously niggardly in granting funds for the building of residence halls, this does not wholly exonerate the institutions for this failure, since there are devices of which they could have availed themselves, independent of legislative provision.

In the year 1927–28, there were 136,659 students registered in the 44 land-grant institutions reporting on this question. Of these 21,472, not quite 15 per cent of the entire number, were housed in institutionally-owned and operated residences; and yet only when the college owns and operates its residence halls can it really control either the physical conditions or the social influences that so vitally affect its students. Of the 44 institutions replying to this section of the questionnaire, 31 house some of their men students in institutionally-owned dormitories, and 32 house some of their women students.

The institutions which make the most adequate provision for their men students seem to be those where military or semimilitary organization is maintained. Three institutions assume no responsibility whatsoever for housing any of their students and the provisions that they make for feeding them affects only a comparatively small part of the student bodies. In the University of California, indeed, there is not even any regulation as to approved rooming houses, and the only supervision of any sort exercised is a requirement that freshman women must live in houses approved by the dean of women. The situation at Colorado Agricultural College is quite different, since this institution is located in a small coherent community where the college is the main interest of the town. The situation at the University of Nebraska more nearly parallels that of California, for Lincoln is not only the second largest city in the State of Nebraska, but it is also the State capital and the center of an active urban life.

Anyone who has worked in a State-supported institution knows that the residents of the locality in which that institution is located assume an almost proprietary right to make a living by various services rendered to the student body. State-supported institutions have had the all too frequent experience of formulating a residence hall program only to be met with concerted opposition from the citizens of the community who fear that such a program will invade their assumed right to profit by housing and feeding the students. On the other hand, every institution that has gone forward with its program in spite of this opposition has found that the erection and operation of even one well-planned, well-furnished, and well-run residence hall has set a standard for student housing in the locality which affects almost immediately the type of accommodations furnished by private owners. When students can obtain good rooms, well heated, well lighted, well furnished, and well run, for a sum no greater, and in many instances lower, than the less attrac-

tive and more poorly maintained private residences that the community offers, the result is not long in doubt. The poorer houses can not rent their rooms, and even those students who do not live in the college residences can make their choice of living accommodations from among the better private rooming houses.

It is interesting to see that although practically all of the institutions report that they are desirous of building more residence halls both for their men and their women students, only 17 have definite plans for expansion of dormitory facilities within the next two years for their men students, and only 10 for their women.[1] It is evident also that the plan of segregating students by classes in residence halls finds very little favor. Only eight of the institutions reporting said that they provided freshman dormitories, and several in replying to this question remarked that they did not regard freshman dormitories as desirable. While it is probably true that freshmen need more help and supervision in making their adjustment to college living than do upper-classmen, it is argued that assimilation takes place more rapidly and painlessly when the freshmen are living in close daily relationships with upper-class students who can both consciously and unconsciously influence them in a thousand ways.

A point of contrast between the residence halls of privately endowed colleges and universities and those of the land-grant institutions is in the type of individual accommodation. Practically all of the land-grant institutions make slight provision for single rooms. This again is probably due to the fact that State-supported institutions are under the necessity of showing members of legislatures that they have housed the greatest number of students possible with a given appropriation; a great many more students can be accommodated in a given space if double rather than single rooms are provided. Few of the land-grant institutions use the dormitory method of housing their students—by this is meant large undivided space with many beds where the students sleep, although they have individual dressing and study rooms. Instead, practically all of the land-grant institutions use double rooms, although occasionally they may have suites which accommodate three students. Rarely do they have the arrangement so common in English colleges, a study in common with individual sleeping cubicles adjoining. It may be questioned whether the effect upon the individual student is desirable when his whole college life trains him in dependence upon constant companionship in both his sleeping and his waking moments, his study hours and his play time. It would seem that administrators should take more cognizance of the already overcrowding influence

[1] See Part III, Business Management and Finance, for methods of financing residence and dining halls.

and stimuli upon young people in their formative years and should make some definite provision for individual solitude.

Thirty-seven of the land-grant institutions report that they furnish student rooms with everything but bedding. It is encouraging to see that only 3 of the institutions use double beds in the students' rooms, although 15 use double-deck beds to some extent. Twenty-nine require the students to furnish their own bed linen, and 27 of these also depend upon the students caring for their own laundry. Thirteen both furnish the bedding and launder it. Perhaps in no single respect does an institution control certain conditions of student life more completely than in furnishing and laundering the bed linen. Even though the initial expense and the cost of upkeep in furnishing the linen and laundering may seem prohibitive, an institution might well cut down on some other furnishings in order to insure this control.

In 25 of the land-grant institutions the women students care for their own rooms and in 20 the men students do so also. Forty-two of the 44 reporting institutions said that they made some inspection of student rooms. In four institutions that use the military form of organization this inspection followed military regulations, the report of the inspection being made to the commandant. In the other reporting institutions the inspection was made by various officials, by the dormitory hostess or director, by an assistant to the dean of women or the dean of men, by a representative of the housing committee in the institutions where the general direction of housing is in the hands of a committee, by the director of the housing bureau in two instances, and by a student committee in one institution. The reports were made to many different institution officials, to the deans of men and women, to the director of dormitories in the four institutions where all the housing and feeding of the students is under a single director, to the health officer, to the superintendent of buildings and grounds, to the president, to the business manager or comptroller, to a housing committee, and to a dormitory board.

One institution stated that the reports of inspections were posted on a bulletin board in the women's dormitory so that the women might see how they were rated in comparison with their corridor mates. The comment was frequently made "inspection of women's rooms, no inspection of men's rooms." The assumption does not seem justified that supervision in minute detail is essential to insure right living conditions for women but that no such inspection or regulation is either necessary or desirable for men. No one who has once made an inspection of a house where men have lived under no supervision for even a brief space of time can doubt that the need for inculcating right habits is probably even greater for the male of the species than for the female.

Sixteen of the land-grant colleges report that they use student proctors but it was quite evident that a number understood the term "proctor" in a different sense than that of a resident who has direct responsibility to the head of the residence hall for living conditions in some portion of the hall. A good many showed by their replies concerning the proctors' compensation that they had taken the term to mean simply a student who, in the operation of the student government organization of the hall, is responsible for maintaining quiet during

quiet hours and for certain other minor observations, but who is answerable to the student government organization rather than to the college authorities directly. Where pay was given for this work it was usually in the form of room rent or its equivalent. Sixteen of the land-grant institutions reported that they employed students as janitors in the dormitories, but only eight felt satisfied with the arrangement.

The replies to the questionnaires showed a wide divergence of practice in fixing the responsibility for right health conditions in the dormitories.

In eight, the health officer of the institution was held responsible; in one, the department of hygiene; in four (under military organization), the commandant; in eight, the dean of women was mentioned as the responsible officer; in five, the dean of men; in four the dormitory nurse; in one, student government officials; and in another the health captains appointed from the student body and cooperating with the dean of women.

Two stated that it was not the duty of any definite officer to see that proper health conditions were maintained in the residence hall. Thirty-nine reported that the toilet facilities were adequate and properly cared for, but only 23 felt that they could be regarded as models of what such equipment should be. When the age of many of the college residence halls is considered and the length of time that their toilet facilities have been installed, it is easy to understand the reluctance of the college authorities to speak of them as models in any sense, even though earnest effort may be made to keep them in usable condition.

Thirty-five of the land-grant institutions reported that their residence halls were centrally heated and 34 that they were adequately protected in case of fire. Only 15, however, use frequent fire drills to accustom the occupants of the halls to the use of fire escapes. It would seem that better observance of the regulations that are on the statute books in most States in regard to fire drill in school buildings would be a wise precaution for the safeguarding of residents in dormitories.

Nowhere in the land-grant institutions did the home economics department have any real responsibility for the housing conditions of the students. Perhaps one should qualify this by stating that a large number of the land-grant institutions have one or more practice houses where the students who are taking household administration are required to live for a definite period of time in a setting as nearly as possible that of a normal family. These practice houses, however, have no part in the housing program of the land-grant institutions but are more properly considered laboratory facilities for the teaching of courses. Only three of the land-grant institutions mentioned cooperation between the home economics department and those responsible for the institutional housing program. In two of these cases a representative from the home economics department sat on the committee that was concerned with the plan-

ning of dormitories. In one other the dean of women, who was responsible for the housing program in the institution, was a member of the home economics staff.

For the woman student who must support herself while she is in college, the expense of living in the dormitory is often too great to permit her to take advantage of the opportunities this offers for congenial companionship. An answer to her demand that she be given a chance to earn part of her expenses while still enjoying group life has been found in the organization of cooperative cottages. Six of the land-grant institutions support some 18 of these residences.

The land-grant institutions where these cooperative houses are operating are Alabama, with three, Iowa with one, Minnesota with six, Washington with one, and Wisconsin with four. The usual number of students living in a single house is about 15. This means that these cottages are a good deal smaller than the ordinary dormitory.

In most cases the institution has found itself possessed of residences that were built for family use. The houses are not ordinarily designated for large-group living. Many times they are old structures that would not justify large expenditures for improvements, but they do make at least a return of a small percentage on the investment when they can be converted into residences for the women students who are anxious to form a group and to lower the cost of living by doing a large part of their own work. The land-grant institutions, therefore, own all but 2 of the 18 cooperative houses which they operate. The two exceptions are being bought on an amortization plan. Eventually the university will own these two houses, which will have been bought and paid for, and presented to it, by the rental that self-supporting students have paid into the financing company.

The amount of work which students have to do in these houses in order to reduce the expenses range from one-half hour to two hours per day. All 6 of the institutions report that the women care for their own rooms; in 5 of them they care for the other rooms in the house also, although 2 institutions report that they hire a woman to do a weekly cleaning through the whole house. In three of the institutions the students prepare all the meals themselves, while in 3 they hire a cook. The cost of board and room averages $230 per year in these houses as compared to an average of $360 in the dormitories or in private houses. The reduction ranges from 33⅓ per cent to 50 per cent. In all but one of the institutions the management of the houses is supervised by an administrative officer, in each case the dean of women. One institution reported that the management was in the hands of the house director, but even in this case the dean of women had final supervision over the living conditions. In none of the institutions did the home economics department have any direct supervision of the cooperative houses.

The advantage of the cooperative cottage plan of living for the self-supporting student is obvious. The students in most cases do little more than they would if they were living in their own homes and helping with the normal housework of their families. They are, however, the very girls who have to work their way by going

into private homes and working for room and board, if there are no cooperative houses in the institution where they can turn their work into actual reduction of living costs. When a girl works in a private family for room and board she is frequently the only person in the family who is maintaining a college schedule. Many times the householder whom she assists, well meaning though she may be, has no real understanding of the demands for undisturbed study time and library work that a college course makes on a student. The unintentional encroachment of employers on the student's study time, the unintentional lack of sympathy and understanding of the student's difficulties in adjustment to classroom work, and above all, the failure to include the student as an integral part of the family—all these frequently create a situation too difficult for the girl to cope with. The cooperative house to a certain extent answers this self-supporting student's needs and at the same time assures her the opportunity for wholesome friendships with others who have the same problems.

The great majority of the students in the land-grant institutions are housed in living quarters provided by private enterprise. For the most part these are private houses with capacity for from 3 to 20 students. Few of them have been constructed with any eye to the needs of group living. For the most part their toilet facilities are entirely inadequate. Many times they are old residences no longer attractive enough to draw a desirable type of private resident or perhaps merely too large for the modern family. While 34 of the land-grant institutions report that they keep an approved list of rooming houses, only 26 inspect such rooms and this inspection is obviously in many cases too cursory to have real value. Moreover, although 33 of the land-grant institutions report that houses are removed from the list if unsanitary conditions are found, since only 26 inspect residences it is difficult to understand how the other 7 find out about conditions unsanitary enough to justify such removal. In more than half of the institutions reporting inspections the inspection concerned itself only with the houses where women roomed. It is quite apparent that the men students are allowed to live in any place and under any conditions that are tolerable to them.

Twenty-nine of the land-grant institutions require their women to have prior permission in order to room in other than college residences, and in all these cases this permission must be secured from the dean of women. Nine do not require such approval; these are Alabama, California, Colorado, Oklahoma, Kansas, Illinois, North Carolina, Massachusetts Institute of Technology, and Utah. Seven of the land-grant colleges report that men must have prior permission in order to room off the campus, and two additional institutions require this for their freshmen men.

While 37 of the institutions report that they advise contracts between the landlord and the student, only 3 say that they make

this an actual requirement. The proportion of students depending on private residences for their housing varies from 3 per cent to 100 per cent, with the median for men at 40 and the median for women at 11 per cent. It is a little difficult, however, to put such dependence on the percentages reported, as institution after institution accounts for far more than 100 per cent of its student body, some giving figures for as high as 145 per cent.

The number of students living at home with their parents while they are attending college ranges from 1 to 75 per cent for the men and from 1 to 100 per cent for the women, with the medians at 15 and 20 per cent, respectively. In these cases, of course, the institution does not assume responsibility for the student's living conditions unless he comes into conflict with authority because of them.

Since the colleges of the country have been, for the most part, so slow in making adequate provision for proper housing of students, the students themselves have tried to solve the problem by providing housing in social groups. The Greek-letter organizations (fraternities and sororities) are the students' answer to this problem. Although six of the land-grant institutions do not permit fraternities to exist on their campuses, and two others do not permit them for women, and while one other has no chapter houses, all the rest of the land-grant institutions find the chapter houses a real factor in caring for their student populations. From 25 to 40 per cent of the men students and from 15 to 40 per cent of the women students are housed in this way in the land-grant institutions, and 33 of the 44 institutions reporting say that they regard this as a fairly satisfactory method of housing their students. Only four report dissatisfaction with it.

In 31 of the land-grant institutions freshmen are allowed to room in the chapter houses and in 27 pledges are allowed to do so. In five additional institutions freshmen men are allowed to live in their chapter houses, while the women are not. This is in most cases a ruling of the Panhellenic Association and not of the college authorities. The cost of living as reported is slightly higher in fraternities than elsewhere in 27 of the land-grant institutions, while 11 report either that it is no higher or that it is slightly lower. Only 22 of the institutions which reported in the earlier question that they made no inspection of any houses, report inspection of fraternities, although this duty is not the province of any special officer. They do not designate the college authority to whom the report is made. The value of such an inspection is open to question. In the discussion of the offices of the dean of men and the dean of women, and in the discussion regarding the whole organization of sororities and fraternities, the question of the relation of these organizations to the college authorities is gone into more fully.

Food Service

With the exception of California, all of the land-grant institutions operate some food service enterprise for their students. In many this takes the form of dining halls in the dormitories for men and women; 16 institutions, however, report the operation of a com-

mons or dining hall for men and 15 the operation of such a dining hall for women, while 30 manage one or more cafeterias. The reports indicate that none of these service enterprises is run with the idea of profit and that the food is served as near cost as possible. The cafeteria would seem to be supplanting the dining hall with service, as a means of feeding the student body. The dining hall seems to hold its own only as a part of the residence hall, although even here a number of institutions report that all meals are self-service style. Student waiters are used in 31 of the institutions, and in 18 women student waiters are used in the dining halls for women, although nowhere are they used in the dining halls for men. The compensation is usually board or its equivalent in hour wages. Twelve institutions report that their home economics department operates either a cafeteria or a lunch counter, but in each case it is considered a part of the regular class or laboratory work of the institution's home economics department, and the students receive college credit for the work done.

Eighteen of the institutions report that they examine their food handlers periodically, while 19 do not. In the cases where the examination is made it is usually at the time of engaging the employee and periodically thereafter. The examination takes place annually in most cases, but in one or two a semiannual examination was mentioned. The laxness of the land-grant institutions in examining the employees who handle food is far from reassuring in the light of our knowledge of the spreading of contagious diseases by germ carriers whose own health is apparently unaffected by the disease germs which they harbor and transmit to others.

The replies to the questions on the responsibility for sanitary conditions in the food service enterprises, including inspection of water and milk supplies, indicate about the same laxness as in the examination of food handlers. The responsibility is usually squarely on the shoulders of the manager of this department. In only seven cases does the college physician or health officer have any control over the situation and in only two is the home economics department called upon to participate. To be sure, the water and milk supplies are in the control of the city health authorities in 18 localities, but even this may not be especially satisfactory if the local health authorities are lax in the performance of their duty. It would seem to be clearly the responsibility of the institution itself to safeguard the health of its students by thorough inspection of this important department. Here again the lack of correlation between elaborate departments of health and hygiene, and elaborate food service enterprises, both of which are supposedly maintained for the welfare of the student body.

Men have always found the time of eating together that of the greatest sociability, in fact our most ritualistic social functions are built up around eating. The land-grant institutions, however, seem to be neglecting this tool of education that lies ready to their hand. The college that neglects its opportunity to inculcate good manners and social ease by means of pleasant surroundings, correct service, and dignity and beauty at the meal hours has wrought real harm to its students. For the sake of feeding more people, in a shorter time, at less cost, they have installed cafeteria service.

That many of the land-grant institutions are aware of the need for improving their practice in this direction is shown by the replies to the question concerning efforts to socialize the meal hour. Many indicate that cafeteria service creates more problems than it solves. Three institutions mention that their own student groups are making a study of the needs of their institutions in this respect. All sorts of devices were mentioned as operative in the women's residence halls to make the meal hour a pleasant and a social time. Some of these were the use of music during the meal, the inviting of distinguished guests and speakers, the cultivation of group singing, guest dinners, birthday dinners, and formality such as dressing for dinner on certain nights of the week, serving coffee in the living room after dinner, and appointment of hostesses to preside at the tables and to set the tone in group conversation. On the other hand, it was quite apparent that so far as the cafeterias and institutional commons or dining halls apart from dormitories were concerned, there was practically no effort at socialization. Only one institution mentioned that it was about to undertake a study to find means of slowing down the student rate of eating. It is to be hoped that a report of their findings will be published.

In general, it must be said that the reporting institutions seem fairly self-satisfied with the efforts they are making to furnish lodging and food to their student bodies. The best instruction in the world, the best student health service, and the best physical education departments, are nullified by such inadequate provision for real living as many of the land-grant institutions make for their students.

Chapter V.—Health Service

The present attitude of the colleges in regard to student health implies a broader idea of education than the old one of concern for the intellectual life of the student only; it is the business of the college to see that each student is physically as fit as he can be made and it is, in addition, the business of the college to provide the means whereby existing defects in the student's health may be remedied, or existing excellencies maintained.

The World War, with its exposure of the general low state of physical fitness of the men of draft age in this country, undoubtedly gave added impetus to the interest of the colleges in the matter of the general physical well-being of their student bodies. However, the establishment of a special department which concerns itself with student health goes back in the land-grant institutions many years before the World War. It has its beginning in most cases in physical education work and is an outgrowth of the students' own interest in athletics. The discovery that many students who desired to take part in athletics were unfitted for it by some basic physical defect such as a bad heart lesion or hyperthyroid condition, forced upon the attention of the institutions the necessity for some preliminary examination by competent physicians of those students who desired to take part in athletic competition. From such examination, it was only a step to requiring physical examinations of all entering students. The disclosures in these physical examinations of basic and remediable physical deficiencies made expedient the establishment of a student health service which should offer the defective student assistance in building himself up.

Reports from the land-grant institutions reveal that the stages in the development of student health service cover the widest possible range. One school reports that it provides its students neither with the services of a college physician nor with any health service facilities of any type. The picture at the other extreme is that of the most modern provision for health care in every field. Between these two extremes range the land-grant institutions, with 8 or 10 well toward the bottom of the scale, a large number in the middle, and 5 or 6 at the highest level, not only in the excellence of their hospital plants, but also in the adequacy of the specialized service provided to the student at very low cost.

TABLE 3.—*Health service personnel*

Institution	Full time				Part time						Number of nurses
	College physicians		Clinical assistants		College physicians		For freshmen week only		For routine examination only		
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	
1	2	3	4	5	6	7	8	9	10	11	12
Alabama Polytechnic Institute	1		1	1			2				1
University of Arizona	1	1									1
University of Arkansas					1		3				2
University of California	1	3		8	15	2	6	11		1	19
Connecticut Agricultural College					1				1		1
University of Delaware											2
University of Florida			1		2				5		5
University of Hawaii					1	1			4	1	0
University of Idaho				1	2						4
University of Illinois	9	3					30				
Purdue University	1				1		5				2
Iowa State College	3	1					2				6
Kansas State Agricultural College	1	1		1		1					4
University of Kentucky	3		2				15	1	1		2
Louisiana State University			3	2	1			1			3
University of Maryland					1		2	2			2
Massachusetts Agricultural College											1
Massachusetts Institute of Technology				4	3				5		2
Michigan State College	1										0
University of Minnesota	5	1	14	1	16	2	32	4	6	1	7
Mississippi Agricultural and Mechanical College	1										1
Montana State College											1
University of Nebraska					2	2					1
University of New Nevada							1	1			1
University of New Hampshire	1			1			3	2			1
Rutgers University	1				1		5		1		1
Cornell University	7	3	2	2							14
North Carolina State College					1		3		1		1
North Dakota Agricultural College					1						0
Ohio State University	3				1	2	8	2			1
Oklahoma Agricultural and Mechanical College	1			1							1
Oregon Agricultural College	2			4			4	1			4
Rhode Island State College					1						0
South Dakota State College	1										2
Agricultural and Mechanical College of Texas	1			1			2				4
Agricultural College of Utah					1						0
Virginia Agricultural and Mechanical College	1				1						3
State College of Washington											2
West Virginia University	1						1				1
University of Wisconsin	7	2		8	1		15				2
University of Wyoming			4								1
Total	53	15	27	35	54	10	139	25	24	3	106

What is the individual student's first introduction to the health service? In most institutions the student meets at least some of the staff of this department immediately on his registration, for practically all give a compulsory physical examination to every student on entrance. (See Table 3.) The elaborateness of this physical examination varies again most widely from a thorough physical and

medical examination, in the top group of colleges, to an extremely cursory physical examination, in the lowest group of colleges administered by the members of the physical education department, whose training in most cases does not fit them to make any sort of medical examination. The cards on which the results of these physical examinations are entered are for the most part quite elaborate and permit of a very thorough study, not only of the student's health on entrance, but of his improvement while in college. Unfortunately, it would appear that these records, like so many others in colleges, are collected, filed, and forgotten. The use actually made of them in comparison to use that might be made, is apathetically small. Although 39 of the schools require a physical examination on entrance, only 22 report that they reexamine their students periodically; 36, however, state that they make follow-up examinations in all cases needing attention. This statement should not be received with too much optimism, however, since only 23 provide facilities for corrective work in their physical education departments. Twenty-nine institutions report thorough case histories and examinations, while 14 express dissatisfaction with the adequacy of the data they collect.

The practice of having the physical examination of all students made by the health service rather than by the physical education department would seem to be highly desirable. In the first place, the staff of the health service, theoretically at least, should be far better equipped to give a complete examination. In the second place, it would seem to be good practice to introduce the student at the earliest possible time to the personnel and facilities of the health service so that he may become familiar with them and establish a habit of consultation at need. Moreover, if the student who presents himself for examination has remediable defects, appointments for further examination or possible medical correction can be made by the one who is doing the examining. Students the country over criticize the amount of red tape that must be gone through on registration. It cuts one knot of this red tape if the physical examination is made by the people who will later help in the correction of discovered defects.

What use does the school make of these physical examinations? In theory, of course, they are supposed to aid in helping each student to his finest possible health. In practice, however, in the land-grant institutions, they are used largely in connection with physical education work and military drill. They exclude from strenuous gymnasium work and competitive athletics those whose physical defects—heart lesion for instance—make it dangerous for them to engage in this work, and those whose condition makes competitive athletics

dangerous because of mental or emotional strain; they locate those needing special gymnasium work for the correction of defects; they check up on the general physical condition of the student and notify him of corrections needed—eye defects, etc.; and in a few instances they actually carry through the physical and medical history of the individual.

Theoretically they might also be used to bar from entrance into the institution the student who would be a menace to others if admitted, or whose nervous or physical condition militates against his success in the college community. In practice, however, only 11 of the land-grant institutions mentioned rejections of students on the basis of the conditions shown by the physical examination. The cause most frequently mentioned is active tuberculosis; venereal disease comes second in frequency. A few additional rejections were noted on marked neurosis, hyperthyroid condition, and epilepsy. In all these cases, however, the institution was careful to say that the student was advised and urged not to matriculate rather than that he was actually barred from admission.

Although the correction of physical defects by appropriate supervision and exercise is one of the primary objectives of the physical examination, only 23 of the land-grant institutions state that they provide in their physical education departments remedial and corrective gymnasium work. Even in some of those that claim to care for their students in this way, a check of the equipment and staff of their physical education departments leads to skepticism about the positive value of the corrective work given. Yet surely this is one of the services that would react most markedly upon the effectiveness of classroom work—one of the primary reasons for the establishment of health service. Only six of the land-grant institutions say they reexamine all cases shown on first examination to have remediable defects. The same six institutions state that they give medical corrective treatment, and three of them also provide surgical corrective treatment. In the light of the showing both in the Army tests and the elementary school health examinations it would seem that much greater attention should be given by the land-grant institutions to raising the health efficiency of their student bodies.

After his physical examination the student's next contact with the health service is probably when he is ill. Most of the land-grant institutions provide some sort of infirmary where students can go to consult the health officer. The range is from a small single room which seems to be a combined office and waiting room to a complete, though possibly small, modern hospital.

Thirty-four of the schools reported that their health officers had a private office; eight said that he did not. Thirty-six institutions had a waiting room. What it led to in the case of the two institutions whose reports showed no private office one could only imagine. Thirty-three institutions reported ade-

quate laboratory facilities as well as infirmaries; 10 were dissatisfied with their laboratory facilities. Only six of the colleges reported that there are no hospital facilities available in the community, and of these all but one provide student infirmaries. Many of the finest of these infirmaries were in the institutions where the university also has a well-developed medical school. At least six of the student infirmaries are completely equipped hospitals where all types of medical and surgical care can be given the student.

In analyzing student use of health service facilities, it was noticeable that where the rest of the report indicates excellence of service, use by the students is heavy; poor service is accompanied by little use. A comparison was made of the frequency of use by students in comparison with student population. This use varies from 12 calls per student to 1'6 calls per student, with the average around 3 per student per college year. The highest use made of health service facilities (16 calls per student) was in an institution exclusively for men. Student use has no apparent relation to the health fee charge, as the number of calls per student in the institutions charging the least and the most was the same—0.3 per student.

Nineteen of the institutions reporting give some laboratory tests to all students. Of these the urinalysis is given by all and the hemoglobin by six, the rest mentioned various individual tests when necessity is indicated. It is interesting to note that the diseases watched for are peculiar to the location of the institution. In the South, inoculations against hookworm and malaria are frequent. The other tests mentioned were X-ray, Wasserman, throat smears, ringworm, and Schick test. Nineteen institutions require vaccination for smallpox, while 24 do not. Eight institutions, nearly all of them located in the South, require inoculation for typhoid, while 35 do not.

The greatest weakness noted in regard to the health service is the haphazard method of reporting cases of students who are ill. In schools where the students are housed in college owned or operated buildings, the check on student illness ought to be a very easy matter, but almost none of the land-grant institutions house a very large proportion of their students. The consequence is that the reporting of illness is left entirely to the voluntary good auspices of landladies, house mothers, solicitous friends, or the students themselves. Though many of the schools expressed dissatisfaction with this method, few gave any constructive suggestions for its improvement. Where students live for the most part, as they do in the land-grant institutions, in privately operated rooming houses, it is possible for a boy, or less frequently for a girl, to be seriously ill for days without its causing solicitude on the part of anyone. While his absence from classes may be reported through his instructors to the college dean, there is no indication that the cause of absence is investigated until some untoward circumstance creates apprehension. There should be some means devised for remedying this serious defect.

It was interesting to note the steps taken in the various institutions after an illness was reported. Five schools take all the cases at once to the college hospital. The follow-up visit is made by a college physician in 23 cases; by a nurse in 8, by local physicians in 5. Two schools report that no visit is made

even after a student is known to be ill. In one school the dean of men and the dean of women make the visits. In one, the official medical visit is made by the superintendent of buildings and grounds. Twenty-three of the institutions have facilities for isolation wards in their own infirmaries, while 14 report that they send all cases of communicable diseases to outside hospitals. Four say that they isolate the students in their own homes. All of the institutions reporting showed excellent cooperation with city and county authorities in dealing with cases of communicable disease. Several mention careful observation of those exposed to infection, during the incubation period of a disease, and two require vaccination after exposure to smallpox.

Another duty of the college health service in many of the land-grant institutions is the issuing of excuses for students who have missed class because of illness. This whole matter requires almost a chapter by itself for it has come to be a real drain on the resources of the health service departments and in many cases defeats the very ends for which they were established. The underlying theory of having the health service issue excuses of this nature is that the health officer by seeing every student whose illness has caused absence can prevent such students from returning to class before it is safe for both himself and for his fellow students. Attractive as this theory may be, the results in actual practice do not support it. When there are so many excuses to be filled out, the inspection becomes mere perfunctory routine and defeats its own end, while at the same time it uses up a vast amount of the energy and time resources of the health service. In several schools the tendency would seem to be toward ignoring excuses altogether and putting the students on their own responsibility as to legitimate class absences, whether for illness or other causes. In most of the institutions reporting, however, this arrangement would seem to be far in the future.

In 31 of the land-grant institutions the physician or health officer issues all excuses for illness; in 7 the dean of men and the dean of women do it; in 2 the registrar; in 1 the college secretary; in 1 the school nurse. The prevailing skepticism regarding the validity of excuses issued by private physicians is shown in the fact that only one of the schools accepts them.

Twenty-two of the land-grant institutions charge a health service fee which provides infirmary service and medical care. The fee ranges from 90 cents to $12 a year, with the median at $6. In many cases this fee covers from two days to two weeks of hospitalization. The University of Wisconsin makes the most liberal provision, allowing hospital care for a whole semester or even longer in special cases, although the student might have been unable to register in the university because of his illness. In most of the colleges, when the illness lasts longer than the number of days allowed free, the cost is about $1 a day, although, as one institution points out, the cost to the health service is much higher, $3.89 in this case. Cost of care in the college hospitals where there is no health fee, ranges from 75 cents to $3.50 per day, with the average at $2. Where the college provides no infirmary and the student must depend on local hospitals for this care, the cost is from $3 a day in the wards to as high as $10 a day in private rooms. This is almost prohibitive for the average student in the land-grant institutions.

The cost of illness to needy students requires serious consideration. Many of the institutions make some sort of provision for such cases, but by no means the majority. The institutions that have complete

hospital facilities in their own infirmaries report that they usually take care of all bills of needy students save surgical ones.

Eight institutions occasionally pay such bills; five arrange for the reduction of bills; five have loan funds available for such emergencies; two give long-time extensions on the bills; two mention a mutual benefit hospital association; two raise money for individual cases by appeals either to wealthy friends or to social agencies; one sends such students to the city clinic; and one reports that it makes no provisions whatsoever, but regards such matters as the student's own responsibility.

Ten institutions indicate that they make special arrangements for treatment of all their students by local physicians at a lessened cost, but 31 make no arrangements for such reduction of fees.

Because of the well-known hostility of the medical profession to any forms of socialized medical service, an attempt was made to discover how local physicians regarded such free or near-free service for students. Nineteen reported that the attitude is favorable; seven that it is indifferent; one, in a word that speaks volumes, says that improvement is noted; while four report distinct hostility. Since the right of industrial organizations to care for the health of their employees is unquestioned, it would seem that the medical profession should grant at least an equal right to educational institutions.

One of the new departments for the care of student health in higher institutions is that of mental hygiene. It is coming to be recognized that many illnesses, mental or emotional in their nature, that are as devastating as tuberculosis, may have no physical manifestation but may wreck a student's college work nevertheless. Two tendencies are shown in handling this phase of student health. The one which seems soundest in all respects is that of having a special physician trained in psychopathology attached to the regular health service. The other is to develop a certain amount of psychotherapy in relation to the department of psychology. Both plans claim the same benefit from their diverse methods; namely, that the student will be disarmed because of the usualness of the contact and will not regard himself as queer or possibly abnormal mentally. Since many students, however, who need attention from the mental hygienist also need a thorough examination in physical respects, this attention can be given with minimum effort and disturbance to the student if all the services of this nature are housed together on the campus. It would seem that there is far more danger of alarming the student about a possible stigma of mental queerness by having him secure the service in the psychology department than by having him go to the regular health service where he consults the specialist just as he would the oculist or the orthopedist. The person who is to do this work successfully on a college campus has need of the fullest medical as well as psycho-

pathological training. It would seem to be the best practice, therefore, to make him one of the regular specialists in the health service staff.

Of the 42 institutions reporting on this portion of the questionnaire, only 9 make any provision for a separate division of mental hygiene. In five of these, the work is in charge of a physician who is primarily a mental hygienist; in four the work is in the department of psychology. Only two of the nine reporting institutions have full-time provision for this work on their campus. The remainder who have it at all indicate that the part-time workers who are doing it are insufficient for the amount and need of the work. All of these departments save one have been opened since 1923. Four additional schools report plans for such a department well under way, although the definite appointments had not yet been made at the time of this study. Twenty of the land-grant institutions (among them all of those where the work has been established) feel that a course in mental hygiene for all college students is desirable, although only a few make it available to the whole student body.

Before this work was established some apprehension was felt lest the students who needed it most would not use it. In actual experience no foundation for such fear exists. As soon as such a department begins to operate with any effectiveness on the campus, students come to it, usually in greater numbers than can be cared for efficiently. They come on the recommendation of instructors who have noticed peculiarities or who feel that there is some emotional disturbance behind the student's failure in class work; they come in sent by the deans of men and of women and the deans of the various colleges; they come because examination by the other physicians of the health service shows that they need to consult the mental hygienist; they come because they themselves are worried about their own mental or emotional disturbances; or they come because some friend is concerned about such manifestations. In one institution where the work was established late in the school year of 1927–28, by the end of the fourth month, 75 per cent of the patients were coming voluntarily and the demands for the service exceeded its capacity.

The significance of this work in its relation to the whole program of education is not yet generally understood. All the schools offering such service report that the results more than justify its continuance and that students are helped in making better adjustments in regard to their social life and vocational choices as well as in their school work. Practically all the students who had used the mental hygiene service had been benefited greatly by it. The number of students who had withdrawn from college on the recommendation of the mental hygienist was not large in proportion to the entire stu-

dent body. It ranged from 1 to 16 cases for the year 1927–28. When it is realized that the program is as yet so limited that it reaches only from 3 to 15 per cent of the student body, the optimism in regard to its usefulness seems even more significant. Mental hygiene is evidently a phase of student health work that will show great development in the next decade.

In summary of this chapter certain facts stand out. The first is that the school can not free itself from the responsibility for the health of its students. It follows that adequate physical facilities must be provided and that these physical facilities must be staffed by a competent force of well-trained physicians and nurses. It follows also that the cost to the student should be as low as is consistent with adequate service. The number of students in the land-grant institutions who are wholly or partly dependent upon their own earnings is very great. These students can not afford costly medical care. A liberal health fee to support such a staff and plant is really a form of student insurance and should be looked upon as such. Although many students do not need the services of such a department at any time during their courses, to other students it may mean the difference between prompt and adequate care and such poor attention that the student pays for it in lowered vitality for many years after. Especially in the institutions that are located at a distance from good hospital centers, student service is doubly necessary.

Another unavoidable conclusion from these reports is that the present method of discovering and checking on student illness is entirely inadequate. A few schools made definite suggestions for improving this part of the service. One of these suggestions is a definite education program both for the student body and for those responsible for the housing, as landladies, house mothers, etc., on the necessity for the early reporting of illness and on the facilities that the health service affords. This could easily be done by means of an attractive bulletin, write-ups in the school paper, lectures during freshman week, and discussion in such organizations as the meetings of householders which the dean of women frequently holds. A little well-directed publicity of this sort will go a long way, both in removing wrong impressions and in curing indifference. The very cheapness of the health service in some schools has militated against its use, excellent though it may be. If the care of the ill student after the health service has reached him is both efficient and sympathetic, it will go far toward overcoming any prejudices that may exist in the minds of the student's friends. It is no less true of the student health service than of commercial concerns that their best advertisers are satisfied customers.

Chapter VI.—Physical Welfare Including Athletics

The statement that the colleges and universities aim to educate the whole man, physically and spiritually as well as mentally is trite, but that this has been and should be their fundamental aim is as true as when the phrasing had the charm of novelty. For more than 50 years colleges in America have been providing some sort of physical training for their students. The aims of physical education in the schools of America have been: (1) healthful living habits including exercise; (2) correction of structural and posture defects; and (3) a sound foundation of hygienic information which should carry over into daily life.

However, study of the provisions made for the physical education of the students in the land-grant institutions presents real difficulty. One phase of physical exercise, that of intercollegiate athletics, has come to overshadow all the others to such an extent that it is impossible to separate it completely from the rest of the picture. It pervades the entire situation, affecting the selection of the staff, the provision of such facilities as playing fields, stadia, pools, and gymnasiums, and the financing of the entire program. In spite of this all-pervading influence, however, the number taking part in intercollegiate athletics in any single institution of the land-grant group is a very small per cent of the student body. The important concern here is the program providing for all the students rather than this selected few, reserving for the latter part of this section the treatment of the problem of intercollegiate athletics, both as it affects the participants and as it affects the rest of the institution. This leaves the topics of physical education and intramural sports for men and for women, and the teaching of hygiene to both men and women as the main topics to be treated here, although it will be necessary to consider the question of staff to some extent in this section.

Reports were received from 44 of the land-grant institutions. In 30 of these the physical education and the athletic programs are administered as a whole under one head while in 13 they are separated. Where they are unified the head of the entire division is usually called the director of physical education and athletics, although in 14 of the institutions the title of professor of physical education is used. Where the departments are separated the intra-

mural athletics is never under the direction of the head of intercollegiate athletics but is grouped with the physical education work.

The director in most of the land-grant institutions has pretty full control of his department, just as the head of any other division, subject to the usual approval from the president and financial officers of the institution. He selects his own teaching staff, approves the purchase of equipment and the payment of bills, signs contracts, assigns teachers, and plans the class work for the department.

In studying the personnel of the staff the domination of intercollegiate athletics in the whole situation must be kept in mind. Otherwise it would be difficult to understand how 25 of the land-grant institutions could put at the head of such an important division of collegiate work men with only their first degree, and four could have in this position men who hold no collegiate degree whatever. In fact, the heads of only 3 of the departments studied held degrees higher than a master's; 12 held the master's degree. This is not equal to the collegiate training of any other teaching group in these institutions. Twenty-four of the land-grant institutions have no one in the department of physical education for men holding a degree higher than that of bachelor. The evident effort, however, to make this department an integral part of the college work was shown by the fact that these men were given full academic rank in many cases. Twenty-nine of the land-grant institutions report that the head of the department of physical education for men is given the rank of full professor; one that he is associate professor; one that he is assistant professor; 12 avoid the issue by using the title director.

The 44 institutions reporting had only 10 members of their staffs in these departments who were doctors of medicine, and only 5 who held the Ph. D. Four of these doctors of medicine were on one staff and three on another, leaving only three to be distributed among all the rest of the group. One school reported an interesting combination of functions—a man who held the title of professor of psychology and athletics and to whom was assigned the problem of research in the psychology of athletics.

It might be supposed that directing the work in physical education is peculiarly the province of young men, but a study of the ages of those reporting in the land-grant college survey would not indicate that the range is much different from that in other departments. Perhaps much of the rather grudging character of the recognition that other faculty members give to the departments of physical education may be traced back to the marked difference between the amount of training and the degrees held by the men in this division and their faculty rank and recognition by the administra-

tion. It seems improper to men who often at financial sacrifice, have spent years to attain doctor's degrees and perhaps also have given years of service in the institution, that the professor of physical education, who holds only a B. S. degree, is given the highest faculty rating and the control of a department.

The women's department is included under the entire division of physical education and athletics in 12 institutions. In 9 institutions the health service is included in this department, and in 19 the teaching of hygiene is included.

The land-grant institutions are realizing the fact that a medical examination as well as a physical examination should be the basis for assigning students to the right physical education sections; a large number make the entire examination of the incoming students either in the health service or in the health service in conjunction with the physical education department. Even among the 16 which said that the examination was made in the physical education department and the records kept there, a large proportion indicated that the services of the college physician or of the medical staff were called on for the medical part of this examination. In two cases the medical examining was done by outside physicians employed only for this purpose. Occasionally also the military department cooperated in the entrance examination. On the basis of the facts shown in the examination the students are assigned to courses in the physical education department.

Twenty-four of the land-grant institutions require physical education of all their students, while 20 do not. Eleven of those which replied that they did not require physical education of all students qualified this by reporting that they required exercise in the freshman year for all. The hours of credit ranged from one-half to three credits a year. Eight institutions gave no credit for it; in 5 military training could be substituted for the required physical education, but in 36 this was not permitted. Wherever physical education is required it is for two years.

A great change in the type of physical education offered is noticeable in the last few years. The old formal floor work, with its lack of relation to anything in the student's life after college, has pretty well disappeared except where it is prescribed for corrective and posture work. In its place is a vast array of physical activities that have their counterparts in recreation the world over. Twenty-five types of sports were mentioned and these could all be elected as the equivalent of formal gymnasium training from the freshman year on. Those most frequently mentioned were football, basketball, baseball, track, cross country, tennis, and swimming. Boxing, wrestling, and fencing came next in frequency, then handball, volley ball, and soccer.

The six institutions that have golf courses permitted their students to elect golf in place of the required gymnasium work, thus offering early training for what is becoming more and more a valuable business and social asset in later life. Skating and ice hockey were offered in the northern schools.

The second important element of physical education work is that of intramural sports, possibly the most hopeful sign in the whole field of competitive play. More and more the land-grant institutions are building up the interest of the men in their schools in the program of play for everyone. Thirty-six of the land-grant institutions report a definite program of this kind. Thirty of them have a director on their staff for this work, while 7 leave it in charge of either a graduate manager or a student manager. The difference of the student attitude, however, in regard to the required work in physical education and the intramural program is shown by the fact that only 9 of the 30 that have a staff director report that they do not have student managers cooperating with him. In the schools where the program is developed most fully, the system seems to work out best by having full student participation in the making of the plans and the rules to govern the program, as well as in deciding on the awards.

The following table shows the number of students participating in each of the intramural sports in comparison with the total number of men enrolled in the institution together with the types of teams.

TABLE 4.—*Number of men participating in intramural athletics*

Institution	Basketball	Football	Baseball	Track	Tennis	Boxing	Wrestling	Swimming	Golf	Horseshoes	Handball	Volley Ball	Playground ball	Speed ball	Soccer	Ice hockey
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Alaska Agricultural College and School of Mines											300					
University of Arizona	250		150	130	100			50					200			
University of Arkansas	200	250	250	120	96		112		40	40			250			
University of California	350	100	200	460	528	105	120	140	52		110		270	704	60	
Colorado Agricultural College	100		100	75	50	50	50	50								
Connecticut Agricultural College	60	36	75	50								80				
University of Delaware	185	70	25	25	18			18	15			185			30	
University of Florida	397		504	240	111	119	98	119	70	82	84	240	504			8
University of Hawaii	40		50	20	30			75							20	
University of Idaho	250		450	200	100		50	100				150				
University of Illinois	1,793		918	659	940	48	112	100	337	364	333	671	1,028	238		
Purdue University	1,418	105	939	930	397	29	40	196	81	296	50	426	1,221			
Iowa State College	716	225	709	400	104		170	244	145	99		378	729			
Kansas State Agricultural College	277		349	517	300	152	237	80	245	345	250				343	
University of Kentucky	240			50		40	50			60		100	220			
Louisiana State University	240	160	240	45		40										
University of Maine	300		350	300	50								400			
Massachusetts Agricultural College	106	40	88	65	52											36
Massachusetts Institute of Technology	140	95	200	130	40											
University of Minnesota	1,217	911	312	306	985	146	55	170	1,195	160	210	262	1,196			263
Mississippi Agricultural and Mechanical College	400		100	150	100	50	25		50	60			100			
Montana State College	180		125	65		15	20	25								
University of Nebraska	600	300	400	1,600	100	100	100	150	100	50	100					
University of Nevada	145		160	95	48							100				
University of New Hampshire	183		290	200	30	69		45								124
Rutgers University	240		308	30	122	22	35				48				120	
North Carolina State College	225	210		500		28		100		400	50	50	240			
North Dakota Agricultural College	160		130													
Ohio State University	2,093		832	365	141	45	105	62	99	652			1,351	916		
Oklahoma Agricultural and Mechanical College	50	80	60	60	20		60	30	20	20						

Oregon Agricultural College	500	100	550	500	100			300		92	92						
Rhode Island State College	150		150	100													
Clemson Agricultural College	125	80	200	50	50	100											
South Dakota State College	100		150	70		50											100
University of Tennessee	321		275	190	50	40	10	9	6	107		186	372				
Agricultural and Mechanical College of Texas	200		150	100	100				100		300	100		100			
Agricultural College of Utah	82		50	102	72	50				75	82		4				
Virginia Agricultural and Mechanical College	310	417	150	77	134	63	32					30					
State College of Washington	390	100	330	250	90	80	120	120	100			110	140				
West Virginia University					102									629			
University of Wisconsin	1,292	769	973	420	149		89	46	137					969			151
University of Wyoming	100		80	120		84	84	70		20							
Total	16,125	4,048	11,372	9,766	5,309	1,525	1,774	2,299	2,792	2,922	2,009	3,068	8,225	3,556	573	682	

Since the aims of intramural athletics imply teams and competition, it is gratifying to find so many students engaging in contests in which the rivalry is only one element in the play spirit of recreation. Even where competition is especially keen among rival teams within the institution, only one reported that the evils even approach those of intercollegiate athletics, and the only example quoted was that of the intensity of rivalry between fraternity groups. The awards and external incentives are for the most part extremely insignificant. They are usually inexpensive cups for teams, medals for individual winners, placques, ribbons, and numerals.

The best features of intramural athletics mentioned by the reporting institutions are: The participation of the majority of the student body; the fact that this participation, because of the variety of intramural sports offered, last all the year around; the breaking down of rather artificial lines of social demarcation in the make-up of teams; the keeping of systematic individual records and the incentive that these give to a man to keep himself fit; and the excellent practice that intramural sports give to the letter men of the intercollegiate teams in coaching. Institution after institution mentioned that much of its coaching of intramural athletics is done by the intercollegiate team men who are barred from competing on the intramural teams. A number of institutions also mentioned the fact that the intramural teams are the best feeders for the intercollegiate teams and that a man has before him always the incentive that if he shows himself good enough in the intramural work he has an excellent chance of attaining the more sought after position in intercollegiate athletics.

The drawbacks to the success of the intramural program most frequently mentioned were the lack of facilities. Even where the facilities appeared to be most adequate the factor of intercollegiate priority enters in; the football fields, the baseball diamonds, the running tracks, and the swimming pool, are frequently preempted at the most desirable times for the training of the intercollegiate athletes, and the intramural teams can use them only in the intervening periods. One school reports plaintively that because of this fact its students are driven to use the facilities of a near-by city and that their swarming out in the earlier morning hours "awakens both the citizens and their ire." Twenty-eight of the land-grant institutions reported inadequate funds to carry on the work, while only 10 felt that they were unable to give adequate supervision; 2 mentioned the unreasonableness of the classroom schedules that demand the best hours of the student's day; 2 felt that the intramural work is hampered by the fact that it is regarded only as a feeder for the intercollegiate teams. The great problem of how to get the right amount of rivalry without having it grow beyond bounds was mentioned

several times. How to group students, how to keep students interested, are parts of the same problem. On the whole, however, the tone of all the reports on intramural programs was most hopeful.

The program of physical education for women has always developed separately from that for men. The coeducational institutions consciously or unconsciously modeled their programs for their women students on those of the segregated women's colleges, which were pioneers in instituting courses in physical education. In all of the land-grant institutions having any considerable number of women students, the physical education department is separate from that for men. In only three, do men handle any part of the work with the women students, and in two of these it is only a nominal supervision. In 12 of the land-grant institutions, however, physical education for women is treated as a part of the entire division of physical education and is not a separate department.

The training of the staff in physical education for women is rather better than that of the staff for men. Only 14 of the land-grant institutions report no one in their departments of physical education for women holding a degree above the bachelor's while 24 showed this situation in the department for men. The heads of the departments for women, however, do not show so marked a difference. Two have no degrees; 20 have the bachelor's degree; 12 the master's; 1 the Ph. D.; and 1 the M. D. Faculty rank is accorded to 12 heads of the department as professors. Two are given the indeterminate title of director, while 7 although they are heads of the department, are given only the rank of instructor.

The required physical examination of all entering women students in 27 of the land-grant institutions that reported, is made in the physical education department for women; in 11 it is made by the health service. Even the 27 which report that they make the examination and keep the records, indicated cooperation with the health service or the college physician on the medical part of the examination. In only one institution was the medical part of the examination made by the family physician of the student before she arrived at the college, and the findings of that examination were accepted by the institution and filed as a part of the student's health record. It would seem highly desirable to center this physical examination in the health service with the cooperation of the department of physical education, in view of the small staffs that were reported in the department of physical education for women. There were only 7 women holding M. D. degrees on this staff in all of the reporting institutions, and of these 2 each were in two institutions, only 3 being distributed among all the rest. Aside from the question of the fitness of the staff to give this examination there

is a consideration already mentioned in discussing the health service—the desirability of cutting the amount of red tape which the student must inevitably go through in the process of registration, by having the entire examination in one place, and that place the one where the student can be assigned at once to the specialists and those giving the further examinations which are necessary in many individual cases. From every standpoint, therefore, it would seem to be desirable practice to shift all physical examinations of entering students to the health service as rapidly as possible. This implies, of course, increasing the adequacy of that service in the institutions where it is not yet up to standard.

Aside from the cooperation with the health service there was little interrelation between the physical education department for women and any of the other departments on the campuses of the institutions. Only five indicated any close connection between the physical education department and that of home economics. Such cooperation consisted largely in the giving of a course in nutrition or some lectures in nutrition in the course of hygiene. One institution mentioned that students showing marked nutrition defects were referred to a consultant in the dietetics department. One institution mentioned frequent conferences between the dean of the division of home economics and the head of the department of physical education; another reported that the department of physical education is under the supervision of the dean of home economics. The hygiene courses were offered as a part of the work of the physical education department for women in 26 of the institutions reporting, while they were given elsewhere in 14.

All women students are required to take definitely assigned work in the physical education department in 36 of the institutions. Only three institutions reported negatively on this point. In five of the land-grant institutions which replied to this portion of the survey, there were either no women students or so few as to be negligible. The same situation exists here as in the departments of physical education for men; all of those institutions which require it prescribe it for two years; four go so far as to require it through all four years of college. Nineteen of the institutions replying required their women students to take physical education for three hours per week; 18 for two hours per week; and only 2 required it for but 1 hour a week. Only four gave no actual credit for the work even though it was required. Just as with the men's department, in most of the cases where credit was given toward graduation, the number of hours allowed for credit in physical education was added to the total number of hours in academic work required. Just as in the men's department too, were offerings of sports and games which could be substituted for the formal gymnasium requirement. Many of these were listed in the various institutions, with basketball, tennis, field hockey, swimming, and various types of dancing decidedly in the lead. The preponderance of those sports which are recognized as recreation in adult life was striking.

While the departments of physical education for both men and women offer their students the opportunity of majoring in this sub-

ject in courses that lead to a definite degree, this work is almost universally included in the school or department of education. It does not seem fitting, therefore, to discuss it in any detail here. It is interesting to note briefly, however, that while the aim of these major courses for both men and women might be considered the same, that of preparing teachers of physical education for the secondary schools, the emphasis in the two cases is altogether different. The courses for men emphasize coaching primarily and go into considerable detail in their offerings of coaching practice for all the sports. Their emphasis on teaching physical education itself is decidedly secondary, while a few pay passing attention to preparing men for such community recreational work as scouting and community playground leadership. In the women's departments, on the other hand, the emphasis is strongly marked in the other direction. The courses are apparently primarily designed to produce teachers of physical education and health and only secondarily to give training as camp leaders and recreational directors of playgrounds.

The provision for intramural sports for women is very different from similar provision for similar sports for men students. There are no intercollegiate athletics for women in the sense that there are intercollegiate contests for men. Only seven of all the reporting institutions mentioned any sort of intercollegiate competition among the women students, although four others reported telegraphic track and rifle meets conducted on the individual campuses simultaneously. While this form of competition preserves some of the values of increased rivalry, team play, and competition in the name of the school, it does away with many of the undesirable accompaniments that have grown up around intercollegiate athletics. Seven institutions reported actual intercollegiate competition between teams of women students. The sports included were basketball, tennis, and track. The competing teams were always close neighbors, so that the trips were neither long nor costly, and in no case was there any particular outside interest in attendance at the games.

The institutions which permit intercollegiate contests for the women students were asked what advantages they saw in them. Two reported that the advantages were "doubtful" or "few," but the remainder asserted "all that any sport has, plus those of education and travel," "the broadening of the women's circle of friends," "college spirit and incentive to train and take regular exercise." "Travel is an educator," said another, and still another replied that "being hosts and guests was a form of education." Three felt that intercollegiate contests stimulated interest in the sport and were valuable in developing social relations.

When the women went on intercollegiate trips the head of the department was responsible for their welfare in four cases, the dean of women in one, and the medical officer of the institution in another. The small number of institutions which sanctioned intercollegiate contests for women and the tone of their replies is a significant indication of the attitude of those responsible for the physical education of women students in our colleges.

Although this discussion of intercollegiate sports for women does not perhaps belong in a discussion of the intramural situation, it seemed wisest to dispose of it before taking up the more comprehensive program of sports for women in the land-grant institutions. Forty provide a definite intramural sports program for their women students and in all but two this work is supervised by members of the physical education staff for women. In all but three there are also student managers of the various sports cooperating with the faculty members in charge of the entire program. In 29 of the institutions reporting there is some sort of athletic association for the women students. The usual name of this organization is the Women's Athletic Association. Its basis of membership varies. In a few institutions every woman student enrolling is automatically a member of the association. In most institutions, however, the membership of the Women's Athletic Association is based on some attainment of proficiency or faithfulness of participation in some of the activities of the organization and is on a voluntary basis. The Women's Athletic Association is managed by a board of students elected by its own membership who cooperate closely with a group of faculty advisers. There is usually one student head for each of the major sports. She is in charge of the program for that sport, making up teams, scheduling events, and in general arousing the interest of the students in her particular activity.

Twenty-nine of the institutions reported some sort of point system for recognizing athletic achievements of the women students. Only one reported that it had had such a system and discarded it because it aroused an undesirable spirit. In most schools the point system was used as the basis for the awards of numerals, insignia, letters, and the higher awards such as the Women's Athletic Association seal, the most coveted distinction in athletics open to women students.

The Women's Athletic Association usually finances itself by some sort of selling campaign—sometimes its members are given the concessions at the stadium during the football games, sometimes they sell tickets not only for their own events but for other games in the athletic department.

Other ways mentioned were by holding dances; by selling apples; by giving circuses and penny carnivals; by selling balloons at the time of the homecoming games (it is a custom in some institutions for the spectators to release balloons at the first kickoff); by maintaining a small supply store in the gymnasium department where the girls can purchase pins, hairnets, hosiery, etc.; by maintaining a weighing machine from which they get a percentage of the profits; and others too numerous to mention.

The money is used to buy the very inexpensive medals, cups, letters, and insignia that are awarded to winners, to promote the sports, and to send one or two delegates to the annual meeting of student heads of the Women's Athletic Association. In one school the money thus raised also supports a scholarship for a student who is majoring in physical education.

The physical education department for women is usually responsible, wholly or in part, for such pageants and festivals as the institution may give. Eight reported some form of May fête in which interpretative dancing and folk dancing played large parts; three reported water festivals or carnivals; several reported an outdoor performance sponsored jointly by the dramatic and physical education departments. Nowhere was there any report of a collaboration between the English department and the department of physical education in the presentation of these festivals, although one institution described a pantomime, A Roman Wedding, given in cooperation with the Latin department. Nine institutions give no public exhibition in any way approaching the formality of those mentioned.

In looking at the field of physical education for women the ideal voiced by the Women's Division of the National Amateur Athletic Federation, "A team for every girl and every girl on some team," seems far nearer realization for the women than for the men. In this field where women were the pioneers they have not lost their leadership but are developing their fundamental theme soundly and successfully.

Hygiene

The course in hygiene is the answer of the college to the insistent demand that students should know more about wise living and the care of their bodies. Theoretically it should be the most useful course in the whole curriculum, and yet 27 of 44 land-grant institutions that reported do not make such a course a universal requirement. In two institutions it is required for the women but not for the men. It is absurd to assume that men have no need for the same type of information. The reports from the student health services would indicate that fully as many men students as women students are subject to disorders incurred either through the lack of this knowledge or its application in their own individual cases. No department could be more fruitful for good in its lasting results on the individual students than one in which hygiene, the health service, and physical education all work together to train the individual student in his own proper care. A course in hygiene is offered in 28 of the institutions reporting, but no report showed what proportion of the student body elected it. Its usual duration is one period a week for one semester. In 14 of the institutions it was given purely as a lecture course, with some demonstrations and charts. In four a textbook was used. It was reported as a laboratory course in only four institutions. It is given as a separate course for men

and for women in all but four of the institutions. Fourteen institutions report a course in community hygiene and six of these make this course compulsory. Only four offer a separate course in sex education and in only one of these is this course compulsory. Where no separate course in sex hygiene is offered there are some lectures included in the course in general hygiene.

It might be expected that the excellent opportunity afforded for a demonstration of the principles of hygienic living by its practical application in college dining halls, dormitories, gymnasiums, and classrooms would have been eagerly seized upon by the institutions. Such does not seem, however, to have been the case. All too often the food furnished by the institution itself and the unsanitary conditions of its own dormitories violate many basic hygienic principles. Twenty reported that some effort is made to exemplify the teaching of hygienic principles in the dining halls and dormitories. This consists largely of inspection by some college official, although in five institutions the diet in the dining halls and cafeterias is based on the principles of the balanced ration. One institution has the class in hygiene inspect and grade the storerooms, kitchens, and dining halls. This would seem to be a most valuable practice from many standpoints. Twenty-five of the institutions replied that the gymnasiums exemplified the principles of hygiene, but in checking the reports on this section with those on the one in regard to the inspection and standards of cleanliness insisted upon for gymnasium suits used on the floor, there seemed to be a wide discrepancy. The reports in the latter case indicated that the inspection is most cursory and that it depends largely upon the fastidiousness of the individual class instructor. There is no periodic laundering of suits in most cases, either in the men's or the women's classes, although the reports from the women's section indicated rather more care in this matter. The replies on inspection as to cleanliness of gymnasium suits for the women ranged from "none" to "weekly," with such enigmatic answers as "dependent on the self-respect of the student," "inspector expected to enforce a high standard," "reasonably fresh," and "depends on the fastidiousness of the individual teacher."

The courses in hygiene have accomplished something in spite of their having been given largely as lecture courses and despite their poor correlation with the actual experience of the student in his living quarters. A few schools reported that the improved health of certain individuals could be traced to this course, and others stated that the interest the students themselves expressed was an indication that the course was filling a real need. One institution had questioned its alumni on the value of the course, and had changed it somewhat in content and considerably in emphasis in the light of the replies.

The cooperation between this department and the student health service should be great. Here again there is much room for improvement.

Intercollegiate Athletics

Intercollegiate athletics began as a purely student enterprise, extracurricular in every sense of the word, with no recognition whatsoever from either faculty or administration. By 1904, however, football had become so engrossingly the intercollegiate sport that President Eliot in his report to the trustees of Harvard College in that year denounced it in no uncertain terms. Certain evils that President Eliot could not have foreseen have brought down even more severe condemnation on intercollegiate football. The most serious of these, from the standpoint of the college, are the loss of the sport's amateur status, the increasing tendency to develop highly professional standards for its performers, the tremendous pressure both mental and physical on the individual player, the great emphasis on winning, and the attendant insistence on the part of the public that they have a right to dictate the athletic policy of the institution.

At its meeting in December, 1927, the National Collegiate Athletic Association recommended the adoption of the following primary objectives of intercollegiate athletics:

1. To supplement and broaden modern education.

In order to take full advantage of the opportunities of intercollegiate sport to this end, the entire intercollegiate sport program should be made a definite part of the general education scheme.

2. To promote the all-around welfare of an increased number of participants.

3. To strengthen by illustration and example individual, university, and public conception and practice of (*a*) Sportsmanship—(1) Regard for player or adversary in victory or defeat, (2) proper balance in victory, (3) courage in defeat, and (4) fairness of attitude; (*b*) team play; (*c*) clean, healthful living; (*d*) true winning spirit—tenacity, honesty of purpose; (*e*) self-control; (*f*) self-confidence; (*g*) citizenship; and (*h*) fortitude.

4. To develop group consciousness, morale, and spirit in the sense of loyalty to the institution and to fellow members of the college community.

5. To reflect through representation the spirit of the institution.

TABLE 5.—*Intercollegiate letter men, 1928*

Institution	Total resident enrollment of men	Football	Basketball	Baseball	Track	All other sports	Total lettermen
1	2	3	4	5	6	7	8
Alabama Polytechnic Institute	1,481	29	8	13	11		61
University of Arizona	1,250	22	8	12	15	5	52
University of Arkansas	1,016	20	9	15	15	3	62
University of California:							
Berkeley	9,051	38	38	14	33	123	246
Los Angeles		23	9	15	19	74	140
Colorado Agricultural College	920	20	7	12	20	30	89
Connecticut Agricultural College	367	17	10	13	11	14	65
University of Delaware	396	15	7	12	6		40
University of Florida	2,062	24	9	15	13	1	62
University of Hawaii	444	20	8	12	8		48
University of Idaho	1,248	17	9	12	9		47
University of Illinois	9,368	28	6	13	30	70	147
Purdue University	3,171	28	11	13	18	51	121
Iowa State College	3,057	18	9	15	17	30	89
Kansas State Agricultural College	2,073	23	9	13	8	13	66
University of Kentucky	1,790	19	10	15	17	6	67
Louisiana State University	1,401	22	8	12	20		62
University of Maine	1,048	21	9	16	22	12	80
University of Maryland	2,307	14	10	10	14	36	84
Massachusetts Agricultural College	466	18	8	14	12	11	63
University of Minnesota	7,807	23	9	11	13	40	96
Montana State College	718	18	10		12	9	49
University of Nebraska	4,032	27	12		28	24	91
University of Nevada	582	18	8		15		41
University of New Hampshire	1,157	9	11	11	17	59	107
Rutgers University	1,640	25	8	13	15	60	121
North Carolina State College	1,527	17	6	14	14	4	55
North Dakota Agricultural College	829	20	7		9		36
Ohio State University	7,816	33	8	16	26	53	136
Oklahoma Agricultural and Mechanical College	1,773	23	10	16	15	18	82
Oregon Agricultural College	2,595	16	10	15	17	18	76
Rhode Island State College	411	16	6	10	12	7	51
Clemson Agricultural College	1,212	23	9	14	12		58
South Dakota State College	608	19	8		7	3	37
University of Tennessee	2,112	21	8	16	13	4	62
Agricultural and Mechanical College of Texas	2,548	15	7	13	12	5	52
Agricultural College of Utah	721	22	8		12	15	57
Virginia Agricultural and Mechanical College	1,217	14	7	12	14	19	66
State College of Washington	1,871	22	10	15	16		63
West Virginia University	2,098	15	8	11	18	12	64
University of Wisconsin	6,026	26	10	13	20	61	130
University of Wyoming	669	19	10		8	10	47
Total	92,885	877	392	466	643	900	3,268

TABLE 6.—*Number of members on athletic committee or board of control*

Institution	Total members	Faculty	Students	Alumni	Trustees	Others	Have separate faculty committee on eligibility
1	2	3	4	5	6	7	8
Alabama Polytechnic Institute	7	6				1	x
Alaska Agricultural College and School of Mines							x
University of Arizona	7	3	3	1			x
University of Arkansas	8	5	3				x
University of California at Los Angeles	7	4	1	1		1	x
Colorado Agricultural College	5	3	2				x
Connecticut Agricultural College	12	4	4	4			
University of Delaware	7	2	3	2			x
University of Hawaii	4	1	3				x
University of Idaho	9	9					
University of Illinois	5	3		2			x
Purdue University	9	2	3	3		1	x
Iowa State College	11	6	2	3			
Kansas State Agricultural College	8	7				1	x
University of Kentucky	10	5	2	3			
Louisiana State University	10	5	2	2		1	
University of Maine	11	3	4	3	1		x
University of Maryland	10	5	2	2		1	
Massachusetts Agricultural College	13	5	5	2		1	
Massachusetts Institute of Technology	8		3	5			
University of Minnesota	12	8	2	2			
Mississippi Agricultural and Mechanical College	11	5	3	2		1	
Montana State College	6	3	2	1			x
University of Nebraska	8	2		1	2	3	x
University of Nevada	5	2	3				x
University of New Hampshire	3	3					
Rutgers University	13	3	3	3	3	1	x
North Carolina State College	8	8					
North Dakota Agricultural College	8	2	4	1		1	x
Ohio State University	10	5	2	2	1		
Oklahoma Agricultural and Mechanical College	9	6	3				
Oregon Agricultural College	3	1	1	1			x
Rhode Island State College	5	5					
Clemson Agricultural College	8	5		2		1	x
South Dakota State College	5	5					
University of Tennessee	7	2	2	2		1	x
Agricultural and Mechanical College of Texas	7	4	1	2			
Agricultural College of Utah	4	3	1				
Virginia Agricultural and Mechanical College	7	4	3				x
State College of Washington	10	3	3	3		1	x
West Virginia University	8	3	2	2		1	
University of Wisconsin	10	6	1	3			x
University of Wyoming	11	3	7			1	x
Median	8	4	3	2		1	

Table 5 shows the intercollegiate letter men in the intercollegiate sports in the land-grant institutions in comparison with the entire resident enrollment of men.

The extent to which intercollegiate athletics has become a college controlled activity with the students having practically no voice is shown by the makeup of the board of control of athletics in the land-grant institutions.

In 41 there is such an athletic board of control; in 2 others the control is not in the hands of a board but in the hands of a single faculty director. In only seven of the colleges giving students representation on this board of control does the student membership outvote the faculty membership. In four land-grant institutions the entire student membership constitutes a legally incorporated body which is called the "Associated students." These schools are all on the West Coast, and in these the students still control the intercollegiate athletics completely, scheduling games, hiring coaches, and handling finances. In an additional school the representatives of the associated students exercise a majority control in the joint faculty and student committee. In two other institutions the representatives of alumni and students together hold the majority of the votes in the committee. Except for these instances the intercollegiate athletics of all the land-grant institutions are in the hands of the administration and faculty. In 11 the balance of power is nearly even, while in 23 the faculty and administration so far outbalance the student membership that they could be supreme in any disputed policy.

The board of control is variously made up of faculty members, alumni, and students, with an occasional direct representative from the president's office; the board of control is responsible to the president of the institution in 23 of the land-grant colleges, to the president and board jointly in 7, to the senate in 4, to the deans in 2, to the board of education of the State in 1, to a joint body of alumni and students in 2, and to a joint body of faculty and students in 1. Purdue is unique both in the make-up of its committee and in its responsibilities. There are three equal groups, the three faculty members are responsible to the faculty, the three students to the student body, the three alumni to the alumni association; the balance of power is held by the director of physical education, who is responsible to the president.

In 24 of the institutions a faculty committee was the final authority on the eligibility of players; in 6 an athletic council passed upon this; in 7 a faculty representative from the athletic board decided eligibility; in 2 a committee composed of faculty representatives and the registrar; in 1 a committee of deans; and in 2 the regional conference to which the school belongs passes on the player's eligibility.

The whole country is divided geographically into eight districts or conference groups which are in turn members of the organization called the National Collegiate Athletic Association. Thirty-six of the land-grant institutions are members of such conference groups and four additional institutions are members of some regional conference other than those included in the national association.

In view of the complete institutional control of intercollegiate athletics reported, it would be expected that both administration and faculty would be entirely satisfied with the status of intercollegiate athletics, and yet the chorus is far from unanimous. A request for lists of evils and disadvantages brought forth many answers, many more than the response to the request for constructive suggestions for their remedy.

All writers who touch the subject of intercollegiate athletics say that the coach is the one factor making the difference between the team which plays in a fine spirit and uses intercollegiate games as real educational tools and the team which plays only to win and exemplifies sportsmanship at its lowest level. It is interesting, therefore, to turn to the reports from the land-grant institutions and study the training, ranking, and salary of the coach. Among the football coaches in the land-grant institutions 7 have no degree, 24 have a bachelor's degree, 3 hold a master's degree, 2 the degree of doctor of medicine, and 2 the Ph. D. degree. In one of the institutions reporting the coach has the title of director of athletics; in 25 he is given the rank of professor; in 5, associate professor; in 2, assistant professor; in 2, instructor; and in 9 he has no academic status. He is appointed directly by the president in 24 of the institutions, by the president and governing board in 11, by the students in 4, and by the athletic board in 4. He is held directly responsible to the president in 26 of the land-grant institutions; to the director of athletics in 10; to the athletic council in 4; and to the associated students in 4. Although he may sometimes fail to attain faculty rank, his salary rarely ever fails to out-rank faculty salaries, and frequently it is greater than that of his own direct head. The highest salary listed was $10,000, made up $4,500 from the administration funds and $5,500 from athletic receipts. Two football coaches in other institutions were listed at $8,000. In one institution a nice balance was kept by giving the head of the department and director of athletics the salary of $8,000 and the head football coach the salary of $7,950, thus keeping them apart by the discreet distance of $50. One might expect to find football coaches in the lowest age group of the faculty members, but this is strikingly not so. The age range is from 26 to 51, and the median in the 27 schools submitting these data is 38. The coach is given a number of assistants, the maximum number in any single institution being 12 and the minimum 1, with the average about 4.

One of the evils frequently charged to intercollegiate football is the subsidizing of players in order to attract them to a certain school. The land-grant institutions all protested ignorance of any practices of this sort within their doors. None had any loan funds available to athletes only, none awarded scholarships to athletes only, none awarded fraternity scholarships to athletes only, and none maintained any aids which were available to athletes only. One institution was aware of one alumni scholarship awarded to athletes only, and one had a few service scholarships available to athletes only. The phrases "we know of none," "not to our knowledge," and "not so far as we are aware" came in again and again as disclaimers.

The institutions were asked to discuss the problems which arise with intercollegiate football. The first one that came up for consideration was its overemphasis. Most of the schools felt that this overemphasis comes very largely from the newspapers and professional sports writers rather than from the institutions themselves. But, a study made of the space in college papers devoted to intercollegiate football shows that a large proportion of the space is given to this single interest in comparison to all the other interests of the institution and of the community.[2]

The count was made for the period from October 5 to October 17, 1924. A measurement of the space devoted to the various aspects of college life in the papers published by four universities showed that no other single interest ranked as high as did football. The chief complaints of the officials who replied to this question in the survey were that the sports writers in order to make a good story, either disregard or garble facts; that their exploiting of the individual player "gives the athletes the big head" and makes them disregard their real college work; that sports writers insist on playing up the individual athlete to the detriment of the team; that they continually paint too rosy a view of the prospects, thus leading to disappointment when the team loses; that they expect good teams with poor material; that they encourage student migrations; and that they continually criticize the penurious athletic policy of the institution. One school complains that they persistently release information prematurely.

The student group tends to overemphasize athletics in a different way. The student migrations at the time of great out-of-town games cause most worry to the administration. The distractions that such a migration necessarily creates, the missing of classes, and the frequent attendant misbehavior of students away from home, were given as the major criticisms against the student body. The overemphasis on the importance of football by alumni takes still another form. Alumni can hardly be prevented from attempting proselyting and recruiting. One president reported that they caused insomnia in the athletic and administrative offices. Several mentioned the embarrassment created by their demanding the resignation of coaches when teams lose. In one instance they had assisted an ineligible man to cover up the facts; in another their relentless criticism had caused retirement of the whole athletic staff.

When it came to a discussion of the domination of football by business men, the situation seemed less serious. This domination took the form mostly of free advice, attempts to influence the administration, and again some proselyting. It is apparently much easier,

[2] Fisher, Edwards Artman, Undergraduates, p. 91.

however, for the administration to ignore the pressure brought by the business man than that by the alumnus. Only one institution reported any real embarrassment from this source.

Another problem mentioned was the adjustment of class schedules. Few institutions admit that they make any difference for their athletes in this respect. Only five reported special adjustments for participants in major sports and of these four were in military drill. All the land-grant institutions reported that they enforce the same rule for cuts on varsity players as on other students. While 11 institutions feel that football is distracting in respect to class work, 29 are not especially concerned. One of the latter remarked that it was not more distracting than many other extracurricular activities; 12 felt that the overemphasis was being gradually eliminated; but 31 institutions could see no diminution.

The evils most generally inveighed against in intercollegiate athletics are scouting and proselyting, and yet 40 of the land-grant institutions defend scouting when practiced openly as a legitimate part of intercollegiate procedure. Most of them make definite provision for this observance of a rival's plays in games preceding their own and, as one expressed it, "open scouting is preferable to bootleg and gumshoe tactics." Open scouting does away with subterfuges and mutual suspicion on the part of coaches. Proselyting is a different matter, and not 1 of the 44 land-grant institutions reporting has been guilty of any infractions, according to their own reports; neither had any of them indulged in professional football. Recruiting of seniors from high schools, however, was admitted by 11. If these reports can be taken at face value, these evils are in a fair way to be wiped out.

Another problem confronting some of the schools is that of playing games on neutral ground, i. e., on playing fields not owned by the institution of either of the competing teams. Twenty-five of the 44 land-grant institutions which replied to this question had played such games in 1927–28. In a few cases it was because there were no adequate facilities on either campus; in several, because the neutral ground was centrally located for both teams and its use cut down expenses. In most cases, however, the game was played on neutral ground for the money and advertising, and frequently this was also because of alumni pressure. Only one expressed complete dissatisfaction with this situation, the others felt that while it was not always advantageous it had proved expedient.

While betting and drinking were mentioned as two other problems in connection with intercollegiate football, both seemed to be confined largely to the alumni and business men who attend, rather

than to the faculty and student body. It was interesting to discover also that the alumni were more of a problem than were the business men, even though the latter outnumbered the former heavily in attendance at games. Betting is a less serious problem for the institution itself than is drinking. A number of the institutions mentioned the use of both local and Federal police forces at their games in order to curb drinking. In several institutions the student governing board in its disciplinary function handled student offenders. Probation, suspension, and expulsion were some of the punishments mentioned, and one institution reported expulsion and "direct publicity." Every institution indicated that control of this situation was improving.

The most interesting section in the whole discussion of intercollegiate athletics proved to be the rather brief one on suggestions which would help to reduce the evils of intercollegiate athletics. Some of the suggestions were quite drastic. Two institutions suggested that participation of players in all intercollegiate games should be limited to one college year or at the most two, instead of the three that are now allowed. Several indicated that the first step in improvement of the situation would be to lighten the load on athletic receipts, since this is depended on so largely to support the whole intramural department also. Another institution suggested the elimination of all championships. Several pointed out that the development of intramural sports might eventually materially cut down the emphasis on the intercollegiate games. On the other hand, three institutions insisted that there was no overemphasis and that in fact intercollegiate athletics should be more highly developed in their particular sections than it now is. A check with the financial reports of these three institutions revealed that in one intercollegiate athletics is supported by a compulsory fee of $10 per year paid by every student; in a second, the net receipts from intercollegiate football had been less than $3,000; and in the third, an actual deficit had been incurred. These facts may have something to do with the opinions expressed. The most drastic suggestion, although probably the least practical, was that intercollegiate games should be played with no paid admissions, the game made an invitation affair, and the game expenses paid from the regular funds of the competing institutions. One pessimistic official said that the two worst evils, proselyting and the student exodus, had no possible remedy. Another institution recommended that practically all the games should be played on the home field of the institution—an obvious impossibility.

The main hope seemed to lie in the creation of better attitudes on the part of the student body and the development of intramural

sports and second teams, more complete control of the entire situation by the faculty, and stronger stress on the scholastic standards of the competing players.

The whole question of financial support of the physical education and athletic programs of land-grant institutions is inextricably involved with the receipts from intercollegiate athletics. The facilities provided for intramural sports depend largely upon the intercollegiate program of the institution. In many cases, too, the receipts from intercollegiate football are depended upon to finance practically all of the athletic activities conducted by the institution.

The domination of intercollegiate athletics is again clear from the replies to the questions concerning the stadia. Twenty-seven out of the 44 institutions report that they have a stadium; 14 of these stadia cost more than $100,000. The use of them for college exercises other than football matches was sporadic. Some of the events mentioned other than athletic contests were farmer's week, opening convocation in the fall, commencement, military exhibitions, Memorial Day exercises, pep meetings, open-air opera, alumni gathering, sunset festival, Fourth of July fireworks, and agricultural club meetings. It is clear that the stadia are probably not used for more than three or four occasions in any one institution in any one school year except for intercollegiate games.

The field house is a recent development in athletic equipment. It is a structure with floor space large enough to provide real playing fields under cover, and its erection marks a definite step forward in the intramural sports program of the institutions. Thirteen of the land-grant institutions report such structures.

Twenty-eight institutions have swimming pools, either indoor or out; 6 of the land-grant institutions have golf courses, while 15 have water courses adequate for various water sports. Only two out of all the institutions reporting had no tennis courts, and only two failed to maintain a cinder track. The number of football fields ranged from one to eight and baseball diamonds from one to nine. Of the 44 land-grant institutions reporting on this section of the survey, 3 had no gymnasium for men.

It would seem that far more adequate provision is made for the physical education and recreation of the men students in the land-grant institutions than is made for the women students. On the other hand, it must be kept in mind that the women, where separate facilities are provided, may use them at all times, while a more extensive list of facilities for the men students may not mean that the majority of men are free to use them to anywhere near so large an extent. Attention was called earlier in this report to the fact that the intercollegiate teams of all sorts hold first call on all the facilities and that in particular the intercollegiate teams have the use at the best and most popular hours. It means little to the average man in

the college that there is a fine track or a good diamond if at the only time that he is free to use them, they are preempted for the small group proficient enough to attain place on the intercollegiate team. Here again the institutions might well make a real study of the time-and-use distribution of their athletic facilities. They would discover that a very small proportion of the student body was getting the greater part of the benefit of those provisions and that even quite elaborate facilities were affording the major portions of their student body but little physical recreation.

In closing this whole discussion of the provision for the physical welfare of the student bodies, several points stand out: (1) It is clear that the land-grant institutions are taking a real and increasing interest in providing a program of physical education for all their students. (2) It is equally clear that intercollegiate athletics has usurped far too large a place in this program. If the program as a whole is to mean what it should for their student bodies, institutions must cease to rely upon intercollegiate athletics for the support and maintenance of their health programs and must instead finance those programs from the same source as any other educational department. (3) There must be more definite correlation of the work of physical education with the work of such other departments as directly affect the physical welfare of the students. (4) They must continue to develop the program of intramural sport and recreation which has been so promisingly begun. All these recommendations call for more extensive study of their own situations by the institutions themselves and a franker facing of their responsibilities toward their student bodies.

Chapter VII.— Orientation of Freshmen

The idea that the college or university should welcome its freshman class, make special preparation for its reception, and arrange for its easy assimilation into the student body, originated with thoughtful upperclass students themselves and not with the faculty. As a matter of fact, some excellent orientation work with freshmen women was begun a good many years ago by organized upperclass students, either through the women's student government board or in some cases by the Young Women's Christian Association. The associated men students in some schools and the students' councils, embracing both men and women, in some others, took up the idea and developed it to include such matters as meeting the freshmen at trains and busses, helping them to find their way about the campus, assisting them in the all-too-complicated process of registration, and even sometimes finding them board and lodging. The students, too, were the first to understand that some offer of assistance before the freshmen left home, either through a letter from an older student or through some sort of handbook, might be the most effective introduction to school spirit. While the administration and the faculty of many colleges throughout the country have now taken up this student idea and developed it in ways that the students had not contemplated and for which, in fact, there were no resources available to them, student contribution in this service should be fully recognized. From the merciless hazing of freshmen in days not yet altogether vanished from memory, to the cordial welcome and whole-hearted assistance now given them by upperclassmen, seems a gigantic step, but it is one that the students themselves took with all too little faculty recognition.

Some of the accepted ways of assisting new students in their adjustment to the college world are: (1) Communication with these students before their graduation from high school; (2) conducting a preliminary series of meetings and tests for them immediately upon their arrival on the campus and before the beginning of regular classes; (3) sectioning of classes on the basis of the students' abilities; (4) providing for the transfer of students from courses in which they are failing to those in which they have some chance of succeeding; (5) assigning the ablest members of the teaching staff to the freshmen classes; (6) prescribing the courses which freshmen may take;

(7) offering a course designed to teach the student how best to use his time and efforts; and (8) giving the students individual help by means of faculty advisers. Some of the land-grant institutions use all of these methods; all of them use some. The word "orientation" has a vogue at present that focuses attention on the practices grouped under this heading.

Of the land-grant institutions, a large majority are definitely concerned with the matter of orienting the freshmen to their campuses. Some 39 make official contact in one way or another with the students before their arrival on the campus. The most usual means of establishing this contact are through the sending of official college publications such as catalogs, bulletins of general information, etc., all of which contain some definite information on living conditions, student expenses, and many times student organizations. More than one-half of the land-grant institutions initiate correspondence from the offices of the dean of men and the dean of women and special correspondence from the deans of the various colleges. Another much-used method of giving preliminary information to prospective students is through contacts with students while they are yet seniors in the high schools. This may be done by official college lecturers in high schools or by sending to the high schools student publications such as the student annuals, weeklies, monthlies, etc. Twenty-two of the land-grant institutions hold special high-school conferences on the campus during the spring. In 19, student organizations conduct special correspondence with incoming freshmen. Sometimes this is in the hands of the religious organization of the school such as the Young Men's Christian Association or the Young Women's Christian Association, but nearly always where this method is used the all-inclusive student organization, such as the Associated Student Body or the student governing board of the institution, initiates the correspondence and the religious organization supplements it. Twenty-four of the land-grant institutions print some sort of a handbook which contains information about the student organizations, and in many other institutions such a publication is printed and distributed by the student governing organization.

Perhaps the best-known recent device for helping the freshman to adjust himself when he arrives on the campus is freshman week, a period of from one to six days preceding the regular registration of upper classmen, attendance at which is required of the entire freshman class. Thirty-nine of the land-grant colleges have instituted freshman week. In a few cases all new students, transfers as well as freshmen, are required to attend, but this is not the usual practice. With the adoption of freshman week, the administration and faculty have taken over a large part of the work

formerly done by upper-class students in helping the freshmen to adjust themselves to their new environment.

Freshman week as it is now organized, at least in the land-grant institutions, consists largely of formal exercises such as lectures, tests, tours of the campus, introduction to the library and its use, and the accomplishment of registration with advice about selection of courses. To the student organizations has been left in large part the leavening of this rather dreary formalism with human recreation. In practically all of the institutions, certain social affairs, athletic events, get-wise meetings, and individual advising, are left to such student organizations as the big-sister committee of the women's student government association or the so-called senior advisers of the general student body. The religious organizations and the churches near the campus are given a chance to participate through social programs confined to a definite place in the freshman week calendar. A good deal of time in all of these institutions is assigned to the individual advising of students by faculty or administrative officers. The returns both from this and the personnel report arouse wonder as to whether deans would have any time at all left for administrative duties if they devoted the amount of time indicated in the reports to individual registration, and educational and vocational advising.

In reporting on the work of freshman week as it has been carried on by them, 31 institutions express satisfaction with its operation; 3 feel that it needs a good deal of improvement; 1 declares that it is abandoning it altogether, although no reasons are given; 12 contemplate no change in the program as at present set up; 14 wish to give more time to individual registrants; 4 wish to enlarge the program and lengthen the period, while 4 intend to shorten their period; 12 indicate that too much emphasis has been placed on formal lecturing and not enough on individual counseling. The participation of various persons and departments in freshman week exercises is fairly uniform among all the institutions.

The vocational guidance committee of the institution, if there is one, the group of faculty advisers assigned to the work, and the deans of the colleges, assist in making out the individual student programs. Sometimes the registrar is included in this group. It is a little difficult to know just how effective the work of the deans may be in one institution that reported that they gave their moral support only. Aside from the physical examinations, the physical education department and athletic director usually assist only by helping stage semi-social affairs for entering students. It is quite common apparently for the librarian to give a lecture on the use

of the library and a number of institutions mentioned his conducting a tour of the library also.

The various student groups, such as the student council, the women's organizations, and the special student committees, are given the margins of the students' time for their share of freshman week. Many of them have charge of evening entertainment during this preliminary period, holding mass meetings for all freshmen on one night, separate meetings for the men and women on another night, and frequently a final mixer which is purely social. The first two meetings are largely informational, giving the students some feeling of the traditions of the school; at the two separate meetings the activities in which the men students and women students can take part are outlined. Thirty-three of the institutions report that they use upperclass students in the the work of freshman week, while only 6 give them no share in it. All of those who use the students replied that their work is extremely helpful. Only one, which had not used them at all, answered that it felt that student aid would be hurtful because of the wrong advice that would be given. This institution was apparently unaware of the implied reflection on the effectiveness of its own work with its students if such were the case.

A common interference with the success of freshman week seems to result from the use of the same period of time by fraternal organizations to conduct their drives for new members. In 14 of the land-grant institutions, rushing by the fraternities goes on during this period, causing serious distraction of those students who are being rushed and also an unfortunate division within the freshman group itself, since those who are not rushed can not be unaware of the social distinction which has been made between them and their supposedly more fortunate classmates.

It is impossible to say whether freshman week has materially reduced elimination, since so many other factors enter into the question of elimination that this single set of influences can not be segregated. Eleven of the institutions are inclined to think that it has had some effect; five feel that it has not had any material effect; but the majority reply that they could not answer this question because of its complexity.

Most of the institutions of higher education have come to the conclusion after a good deal of experience that they obtain the best results when the students are divided into classes whose pace can be adapted to the ability of the individual in such subjects as English, mathematics, science, and languages. It is quite common now to make up the classes on the basis, not merely of how

much work in the subject the student has previously had, but also on his own ability as shown by some one of the standard tests. It is felt that this method of dividing the classes makes it possible for each individual to do better work, since in the section showing unusual ability these students can go at a much more rapid pace and with much more stimulating competition among themselves than with a mixed group. It seems to be equally true that the slow sections make really better progress and get more out of the work as individuals when they are competing on this fairly even level than where the performance of some outstandingly brilliant student points out all too discouragingly their inability to match his performance. The case is not so clear for the groups of average ability, since the removal of the outstandingly strong students leave them to their own pace setting. Many times this group contains quite a number of students who by competition with the more brilliant would develop greater proficiency than they seem to when they are competing only with those of about their own level. Perhaps this is truer in the classes in such subject matter as English and languages than it is in mathematics and the sciences. It is in English, however, that we find the largest number of institutions sectioning their classes on the basis of ability.

Thirty-two of the land-grant institutions section their English classes on the basis of student ability, 24 their mathematics, 15 their chemistry, 10 their languages, and 4 use this as the basis in some other subjects. There is no apparent uniformity even within a single institution since some section only one subject on ability and some several. In spite of the fact that 33 of the institutions sectioned their students on the basis of ability, 22 replied that the work in the courses was the same for all sections, a contradiction for which they offered no explanation. Twenty-three of the institutions felt that the sectioning was a real factor in the reduction of freshman elimination, while four replied that they did not.

Most of the land-grant institutions make provision for transferring a student from a subject in which he shows lack of aptitude to one in which he will have a better chance of success, and they do this fairly early in the work.

There was an old idea that anybody could teach a freshman and that the talent of the institution should be saved for the upper-class students. While this has been contradicted repeatedly, it would still seem to be all too much in force in the land-grant institutions. One-half of them report that less than one-fifth of the freshmen are taught by men in the rank of full professor; less than one-seventh by men in rank of associate professor; just about one-fourth by men in the rank of assistant professor; and more than one-third by men in the rank of instructor. On the other hand, there was a comparatively small percentage of the freshman class taught by those under the rank of instructor. While, of course, it is realized that

rank does not of itself indicate the best teaching ability, it still is evident that too much of this teaching is being done by those whose experience or training is as yet insufficient to entitle them to real faculty recognition. Since the elimination figures of all the colleges show that the freshman year is the most crucial time for a student, the institution that wishes to give him the best possible chance of success in his work should furnish him at the very start with the best instruction at its command.

Apparently there is a strong tendency to prescribe practically all of the work of the freshman year. In the land-grant institutions 40 report that three-fourths or more of the work of the freshmen is prescribed in agriculture, 39 report this for engineering, 31 for home economics, 20 for arts and sciences, 17 for education, 16 for commerce and business, and 9 for veterinary medicine. On the other hand, there is comparatively little uniformity as to the requirements of courses as between the various curricula; although 40 institutions reply that they require physical training in the freshman year for all students, and 39 that they require English; the next highest number is 22 which require science, followed by 20 which require psychology; 15 which require hygiene; 10 which require mathematics; 8 which require history; and 5 which require modern languages. Twenty institutions require psychology in the freshman year of college work.

In answer to the complaints that students have not been trained in high school in the wise use of their time and energy, that they come to college knowing nothing of the use of a library with its standard reference works and indexes, that they do not know how to take notes, and that they do not know how to abstract material from reference reading, the institutions of higher education have taken upon themselves the task of giving students preliminary training in the art of studying. The land-grant institutions are following this trend quite rapidly. Some 20 of them report a formal course in "How to study." The 21 who reply that they have no such course, frequently qualify their answers by saying that some work of this kind is given in various departments such as English and education. In one institution the course in "How to study" is eight years old, but most are much more recent. Sometimes this course is given for credit, but not often. A member of the department of psychology gives the course in the majority of the institutions, although various personnel officers are responsible for it—sometimes it is the dean of women, sometimes it is a professor of education, and sometimes it is a member of the English department. It was surprising to find a few of the institutions still using texts in the course "How to study," that are entirely antiquated.

The course "How to study" has been given as a true psychological experiment in a very few of the institutions and the tentative results that have been obtained show that it is no panacea, enabling the dull or lazy student to equal the achievement of his more brilliant brother. The experiments which Dr. Charles Bird of the

University of Minnesota has been conducting for the last two years seem to point quite clearly to what might have been suspected. While his results are still in the experimental stage they seem to demonstrate that when the "How to study" course is based on actual practice in increasing eye sweep, training for rapidity of reading, for accuracy of retention, and for analysis of significant points in the text studied, the students who profit most are those in the upper quartile in original ability; the students who show a fair improvement are in the middle group as to ability; while those in the lowest quartile in this, as in other subject matter, reap the poorest rewards. Doctor Bird reports that in the fall of 1928 when he was given one section of students so low in college ability rating and high-school performance that they were admitted to the university on probation, he was unable to improve the performance of the majority of the group sufficiently so that they either obtained a passing grade in the course or did passing work in their other studies. It is, of course, no criterion of the value of such a course that the student attains a passing grade in the work itself. If a course in "How to study" is justified at all it must be in the carry-over of habits and skills to the regular subject matter of the other courses that the student is taking. Such a study as that of Doctor Bird raises the question whether the institutions that give such optimistic reports about their results are not conducting courses along the old lines of exhortation on right habit formation, will power, and attitude of mind. Nine of the institutions giving this course reported that their students showed an increased use of the library as a direct result of it. Nineteen of the 20 giving the course felt that it was worth while, although one gave the guarded reply "It ought to be." It should be interesting to watch the development of this particular line of work in the next 5 or 10 years, for some significant results are sure to come from the sound studies now being made in several institutions.

As was brought out in the discussion on personnel, practice varies widely in the method of freshman registration for courses. While a very large number of freshman courses are prescribed in the various curricula, many of the land-grant institutions feel that the freshman needs a direct personal contact with a faculty member in making out his program. The overworked dean comes in here again in large numbers for he is reported many times as actually meeting and making out the program for the individual freshmen in his college. Other institutions have a group of faculty advisers assigned especially to this work, and many mention the fact that they use only such faculty members as have shown ability to meet the student sympathetically and to plan his work wisely. In some of the land-

grant institutions a certain proportion of the time of some faculty members is released from teaching duty so that they may do this work more effectively. The students in the group that the faculty member is to advise are usually assigned to him outright. This adviser not only assists in making out the student's program in most cases, but keeps in touch with him throughout his freshman year, checks upon his work, and tries to help him in every way. The value of this contact can hardly be overestimated where the work is well done. It would seem to be an important enough function to justify more careful studies than have as yet been made as to the number of freshman students needing such advice and continued counsel, the best way of organizing such a corps of advisers, and the proportion of their time that may justifiably be released from the teaching program for this purpose.

In summarizing the work being done to orient the freshman in the institution, the widest variation of practice is found. There has apparently been comparatively little sound study of this important phase of student relationship to the institution. The mortality rate of the freshman class is heavier than that of any other class, and although an unusually large number of factors enter into the mortality rate, it is time that the institutions themselves take the initiative in making a real study of conditions and in testing the efficacy of the devices in vogue to correct it. Probably no more important contribution can be made to educational knowledge than a thorough scientific study of the work of assimilating the new student into the college body in such a way that he shall profit most by what the college has to offer.

The question of student mortality as a whole belongs properly in the registrar's section of the land-grant college survey report. Certain phases of this work, however, particularly those that deal with the student on probation, are usually handled in the college personnel offices. It seems necessary, therefore, to touch briefly on student mortality. The phases handled in the personnel offices are usually threefold: First, discipline in some fashion for failure in classroom work; second, diagnosis of failure; and third, preventive and remedial measures.

Perhaps the first step in the reduction of student mortality should most properly be the weeding out of incompetent prospective students. In the land-grant institutions, however, because they are State supported, there is little possibility of such limitation. A number of these institutions are making an effort through cooperation with the high schools to give authoritative advice to the graduating seniors on their probable success in college. Advising a student not to enter college, however, is a very different thing from refusing him regis-

tration. The privately supported institution has the opportunity of making an absolute selection of its freshman class. The State-supported institution, whether State law covers the actual case or not, is in no position to make such selection.

While 26 of the land-grant institutions which replied to this section of the questionnaire said that they made some attempt to eliminate before registration those students who should not go to college, only eight reported that they actually limited enrollment. Twenty-four reported that they admitted all graduates of accredited State high schools. Twenty-seven of the land-grant institutions report that they drop a student automatically when he has failed in more than 50 per cent of the work of his past term.

Automatic elimination seems on the face of it a harsh method of dealing with the student deficient in his work. All of the institutions reporting the use of this method, however, qualified it by saying that a student whose mid-term report indicated probable failure was warned, and put on probation. Twelve of the institutions assigned such students to a faculty adviser to go over his work with him, to see how he was using his time, possibly to recommend restriction of outside activities, and if it seemed wise, to reduce the load of studies he was carrying. Only five of the institutions reported that they also warned the parent at the time that the student was put on probation. This does not represent, however, the real number who use this means of stimulating the student to great effort. Thirty-four institutions reported that they made a real effort to discover the true cause of the student's failure. Many times this was done by comparison of the high-school record, the psychological test, and the report from the health service. Twenty of the institutions transfer students whose work is below grade to special sections where they have increased attention from the instructor.

The institutions were asked to list in the order of importance what they considered the chief causes of deficiency in their failing students. Almost invariably the causes they listed carried no blame to the institution but were either the student's own lack of ability or his lack of preparation in the lower school. Only 4 institutions reported that poor instruction in college had anything to do with student failure; 15 laid it to lack of foundation in high school; 14 to poor ability of the students; 10 to lack of application; 8 to bad adjustment, including study habits; 4 to irresponsibility on the part of the student; 4 to the distraction of extracurricular activities; 3 to lack of interest; 3 to physical handicaps; 1 to financial difficulties; 1 to inferiority complexes; and 1 to the too great requirement in actual study hours. It is fairly obvious that this list represents opinion and little careful diagnosis of individual cases. Since the percentage reported as dropped in the freshman class because of poor work ranged from 0.6 to 49 with the median at 7.5, it would seem that

freshman elimination is a serious enough problem to warrant some real research based on actual diagnosis of individual cases. When one institution with an enrollment of fewer than 2,000 students reports that 49 per cent of its freshman class was automatically dropped for deficiencies in class work, it appears that the institution has a problem on its hands acute enough to challenge careful examination of its practices. Serious losses that are less startling demand careful research. The experience of the institutions that are developing departments of mental hygiene would indicate that the old rule-of-thumb method of diagnosing causes of failure is far from satisfactory. It is much easier to say that a student is lazy and "won't work" than it is to uncover the emotional conflict that may be at the bottom of his apparent unwillingness to work. It would seem that the services of the mental hygienist should be called in far oftener than they are.

What are the colleges actually doing to cut down student mortality? First of all they are trying to build up stronger cooperation between the preparatory schools and the colleges. In this, many of the land-grant institutions are developing close relationships with the public high schools. Nearly all of them report high-school visitation as the first step in securing this better understanding. In three of the land-grant institutions the State high-school principals are brought together for a joint conference yearly. Eighteen of the land-grant institutions send a definite report of the actual record of each graduate of each high school back to the principal of the school. This is a double-barreled device. It gives the high school an actual measure of the success of its graduates, and it stimulates the student to do his best, since he knows that the report of his success or failure is going back to his home community.

A few of the larger of the land-grant institutions are giving the college ability tests to seniors in the high schools, in the spring preceding high-school graduation. On the basis of these tests and the students' records in high school, they are advising graduating seniors about the probability of their success in college. While the first obvious use of this device is to discourage those whose chance of success is small, two of the institutions that have tried it report that it is almost as valuable in encouraging the student of marked ability who had not planned to come to college. Sometimes because of economic conditions or unsympathetic attitudes at home a student of very marked intellectual ability has felt that he can not hope for education beyond high school, yet he may be the very one who could profit most by such educational opportunities. It is fully as important for the college to find this student and encourage him to

go on as it is to discourage the student whose chance of success is too slight to warrant his making the effort.

So much for the devices in use in attempting to select students. When a student who has been accepted shows signs of failing in his work the institution must take steps to help him. In addition to the methods already discussed—warning, probation, readjustment of program, and assignment of a faculty adviser—certain suggestions are made by some of the land-grant institutions. The one occurring most frequently is that of careful study of the student's schedules, usually in connection with the "How to study" course. Two institutions report that they assign a failing student to a tutor or to coaching classes in order to enable him to catch up with the majority of the students in the section. Three institutions report that they have noncredit preparatory courses to which they assign students who are deficient in preparation. Two institutions establish study halls where the deficient students may study under supervision. Only one institution suggests that since the living conditions of the students have so direct a bearing on their success or failure in college work the institution itself has a responsibility to provide more dormitories so that the students may be better housed. One institution reports that it is making a case study of the relation between failure in studies, excessive participation in extracurricular activities, and the health condition of the individual student. It makes the suggestion that permission to participate in extracurricular activities be based not only on ability to carry scholastic work satisfactorily as it is at present, but also on a satisfactory health record, so that the institution may be sure that the student is not overtaxing himself.

The reports of the land-grant institutions on their methods of dealing with failing students show that there is a vast amount of guesswork as to causes of scholastic deficiency. When only 4 out of 44 land-grant institutions mention their own instruction of their freshmen as a possible source of some of the student failures, and all the others lay the full responsibility either on the preparatory school or the student himself, it would seem that a little self-appraisal might well be in order. The institution's own large responsibility in the matter of housing its students and assuring right living conditions and study surroundings can not be overlooked. This question is discussed more fully in the section on provision for student housing and feeding. Its direct bearing on scholastic success can not be doubted. The majority of the land-grant institutions are conducting graduate work. It is suggested that the question of freshman mortality affords a profitable field for useful graduate study which might produce some doctor's and master's theses of real value.

Chapter VIII.—Religious Organizations and Convocations or Assemblies

An argument of the small denominational college familiar to all who work in State-supported institutions is that the religious life of the denominational college safeguards the beliefs that the student brings with him from the home, while the State-supported institution is a Godless machine ignoring the spiritual side of the student's life. It is interesting, therefore, to find, how large an emphasis is placed upon religion by the land-grant institutions. The courses offered in some of the larger institutions in the philosophy of religion and kindred curricular treatments of religious experience may be neglected by this report. This section deals entirely with the actual recognition by the institutions of the place of religious observance in the student's life, the cooperation offered by the institution to existing religious organizations, and the fostering within the institutions of student activity centering around religious organizations.

Even in the institutions with the most extreme "hands off" attitude toward organized religious activity, the report on the number of student religious organizations and activities showed that with the cooperation of the faculties, the students are maintaining numberless denominational organizations, as well as vigorous all-inclusive religious groups, such as the Young Men's and the Young Women's Christian Associations. It is a question whether the student himself may not benefit in a higher degree from the self-sought, self-maintained religious life than from compulsory observances of formal religious services which he has no share in directing. The comment of one of the universities which maintains compulsory chapel service was pertinent on this very point. In its reply to the question regarding any experiment to improve chapel exercises in the institution, it stated that, "Although attendance is compulsory, we have little difficulty in getting the students to attend the services."

In 18 of the land-grant institutions the religious activities are under the leadership of one individual; in 13 of them this person is the Y. M. C. A. secretary; in 3 the college chaplain; in 1 the professor of religious education; and in 1 a student pastor. Where the work is under the charge of more than one individual the most frequent form of management is by a committee of the faculty. Next comes a student-faculty committee, then faculty advisers for the religious organizations, and then student pastors who are not employed by the institution but are supported by the various denominations and cooperate with the administrations in the religious program of the institu-

tions. It was impossible to tell in the 18 institutions reporting a religious director whether his salary is paid wholly by the institution or partly by other organizations. It was surprising, however, in the reports on institutional funds devoted to religious work, to discover the number of institutions that make outright grants to denominational groups for carrying on their work. Fifteen of the land-grant colleges give direct support to student religious organizations in which there is no evidence of direct institutional control. The sums ranged from $200 per annum to $9,700 per annum. One institution gives $600 outright to each of four denominational groups on its campus, regardless of the number of students participating; the 35 students enrolled in the Episcopalian student organization receive the same grant of money ($600) as do the 450 students enrolled in the Baptist organization. The two largest subsidies were in Southern State universities—Florida, $9,700, and Tennessee, $7,600.

Thirteen of the land-grant institutions conduct chapel exercises and in 8 of these attendance is compulsory. Of the 8 institutions requiring attendance on the part of the student body, only 3 reported that attendance was compulsory for faculty members. Twenty-eight report that they do not hold chapel exercises as such.

The time of holding chapel varies; two hold it at the first hour in the morning, four in the middle of the morning, and the rest at noon. These exercises fall about equally on the days of the week with the exception of Saturday. A number report Sunday chapel exercises which come at the usual church time; one holds a vesper service in the late afternoon. Only six have a building used exclusively for chapel services. In the others, the services are held in the general auditorium which is, of course, used for other purposes the greater part of the time. Ten reported that the building in which the exercises were held would accommodate the entire student body, but the rest stated that the accommodations were adequate for only about one-third of their numbers. In the cases where attendance was not compulsory the institutions invariably reported that the capacity of the building provided for more students than habitually attended the services.

The following program seemed to be typical in 13 of the 18 institutions which hold chapel exercises: Song, scripture reading, prayer, address, announcements, and song. The devices to improve chapel exercises ranged from the attempt to make the students feel that they had a real part in those exercises, giving various religious organizations definite dates on which they were responsible for the program, using student choirs and ushers, and having the seniors attend in cap and gown; to the more obvious ones of improving the quality of the addresses, installing a new pipe organ, devoting the time to discussion of actual student problems instead of abstract inspirational addresses, improving the singing, and shortening the service.

Many other religious meetings of various kinds were reported from the land-grant institutions. A number of institutions support an intensive period of religious meetings, frequently under the leadership of some outstanding man of national reputation. These usually take place in the spring and all the religious organizations on the campus and denominational churches near-by unite in putting on this intensive period of concentration on religion. Another favorite form of religious meeting is the weekly discussion group, both for the Young Men's Christian Association and the Young Women's Christian Association. Sometimes these are organized for freshmen students only, under the leadership of a directing group of older students; sometimes they are open to all students in the institution.

Meetings for those who expect to devote their lives to religious service were mentioned frequently. Special religious observances of the church holidays—Christmas, Holy Week, and Easter—and of national holidays such as Thanksgiving, Washington's and Lincoln's birthdays, and Memorial Day were also mentioned. One holds morning devotions for the staff. A number of institutions also reported Bible study groups, meditation hours, world forums, life work groups, and noonday prayers. In two institutions, the Young Men's and Young Women's Christian Associations conduct joint courses in comparative religions.

The list of religious meetings held on the various campuses indicates that a student who desires to develop his spiritual life has ample opportunity in almost any of the institutions. In most it is the student's own problem to fit himself into the program offered him for voluntary participation.

It proved to be almost impossible to list all the religious organizations on all the campuses. No major religious group and almost no minor denomination within a religious group was unrepresented. The Young Men's and Young Women's Christian Associations, of course, led the lists. Since the statement of belief of these two organizations has been broadened so as to make it possible for Protestants, Catholics, Jews, and Buddhists to participate in their programs, it is apparent that a great change has been wrought by the student leaders in these two organizations which started with so strict a Protestant evangelical bias. Even where these all-inclusive organizations are carrying on an active program, however, many religious organizations flourish. The Newman Club for the Catholics, and the Menorah Society, B'Nai Brith and Hillel Foundation for the Jewish students, represent the non-Protestant religious organizations. Within the protestant group the entire gamut is run from the Unitarian, Latter Day Saints, and Christian Scientists to groups like the Presbyterians and the Episcopalians. The Quakers, the Methodists, the Congregationalists, the Dunkards, the Disciples are all represented on the campuses. Many times within the denominational group separate groups are also formed for specific purposes such as Kappa Phi within the Methodist group, a club for women students organized to develop leadership in semisocial church life when the student goes back to her own community. Many of these in order to compete more successfully with the purely social organizations on the campus have taken Greek-letter names, and a phenomenally long memory is needed to keep in mind these various Greek-letter combinations and nonindicative names which conceal the social-religious intent of the group from the casual observer.

There is nothing about such a name as the "Nomads" to indicate that its members are a group within the Presbyterian Church, nor in the name of "Northrop Club" to show that its members are Congregationalists, while the names "Phi Tau Theta" and "Sigma Eta Chi" look like any other social Greek-letter organization instead of revealing that one is Methodist and the other Congregational.

The number of the organizations and their large student membership is an indication of another feature of the type of religious work being carried on. This is the cooperation extended to the local churches. In 41 of the 44 land-grant institutions reporting on this section of the survey, the entering student indicates his church affiliation or preference. In 38 of these, this information is furnished immediately to the local church of that denomination so that an invitation may be extended during the first week to the new student to attend the church of his own denomination in the new locality. In 26 of these institutions the same information is also given to student organizations on the campus. In but five was it used merely for statistical purposes, and only one institution reported that this information was collected but no use was made of it. Only seven of the land-grant institutions stated that they advised prospective students to bring a letter of affiliation from their own church to the church of the same denomination in the college locality, and yet 80 per cent of the men and 82 per cent of the women in the land-grant institutions were reported as church members. The figure ranged from 30 to 95 per cent for men and from 22 to 95 per cent for women.

A very different emphasis is apparently being given to participation in religious activity on the campus than was true in former generations. Fourteen institutions reported on the number of students preparing for the ministry. In all 14 of these institutions there were but 108 men and 9 women actively preparing for the ministry, with 104 men and 56 women preparing for other religious work. In view of the predominately technical character of the land-grant institutions this relatively small number is probably of no special significance.

Twenty-three of the land-grant institutions report that the local churches arrange denominational meetings for the freshmen during freshman week, and 39 report that the town churches cooperate actively throughout the year with the religious organizations on the campus. All 39 report also that an equal opportunity is given to all denominations to participate in religious meetings on the campus. Some of the methods of cooperation mentioned were putting on special services, cooperating with the Young Men's and Young Women's Christian Associations, organizing special church and Sunday school classes for students, bringing leaders to the campus to conduct world forums, providing student pastors, maintaining a student religious council which includes Protestant, Catholic, and Jewish members, teaching religious courses and courses in comparative religions, and furnishing transportation to the students of their denomination on the first Sunday after college opens. In one institution the pastor of one of the student churches is a professor of psychology in the institution.

Many of the land-grant institutions report an active interest in fostering student discussion groups on religious questions. These

take the form of weekly groups under leadership, meeting Sunday, Monday, and Wednesday nights; weekly student forums; class discussion groups such as freshman, sophomore, and junior Bible classes; international interest groups such as the Cosmopolitan discussion group, and interracial discussion groups; and the organization of religious discussion groups in the various fraternity and sorority houses. In nearly all of these it was evident that they were organized in response to the desire of the students themselves and were conducted almost wholly by student initiative with help from interested faculty members, student pastors, and Young Men's and Young Women's Christian Association secretaries.

Convocation

Whether the students assemble in a body for religious exercises or for meetings of quite another character most educators feel that there is a real value to be gained from the sharing of such common experience, the singing together with which the convocation usually opens, the common intellectual and emotional stimulus given to the entire audience by a speaker, and the feeling of unification that comes from attending the exercise in a large group. It is quite evident from the report of the land-grant institutions that although only 18 of them conduct chapel exercises, many more are aware of the values gained from this group experience. Thirty-five out of the 44 reporting hold regular convocations.

These are held at regular intervals in 21 of the institutions and on fairly frequent call in 18. The institution reporting the lowest frequency holds them twice a year, while several institutions set aside a weekly period reserved for convocation exercises, even though an all-student convocation may not be held every week.

There is something to be said for setting aside a regular convocation period. The faculty is notoriously fearful that the students will suffer irreparable loss if the number of class periods for any given course is invaded too frequently by outside speakers. When the convocation is not regularly arranged for on the class schedule of the institution there is more danger of this invasion and the students may miss the same class more than once in a single semester.

Where the meeting is not regularly scheduled at a definite period it is usually on the call of the president, but in three institutions it is on the call of the student-governing body of the institution, and in only one of these three does the president share with the student-governing board the responsibility of calling convocations. In 15 of the institutions a weekly convocation period is set aside and in 8 a semimonthly or monthly convocation is held. In two institutions the convocation is held at the first hour in the morning; in the rest it comes in the middle of the morning or just preceding the noon hour. A few mention additional assemblies toward the end of the afternoon, not for the whole student body, and not calling for the dismissal of all classes in

the institution. Only 12 of the institutions report compulsory attendance at convocations. Since in only 13 of the institutions is the auditorium large enough to accommodate the entire student body, it may be inferred that compulsory attendance coincides with the satisfactory capacity of the auditorium. One institution reports that freshmen are not permitted to attend convocation, since it is regarded as an upperclass privilege. The range of attendance is from 1 per cent to 100 per cent, with the median at about 50 per cent.

The president usually issues invitations to speakers for the convocations, although in several of the schools this is the duty of some other official, such as the dean of the college, the chairman of the convocation committee, the assistant to the president, the secretary of the college, and in one institution the secretary of the Young Men's Christian Association. It would seem that the person who plans the college convocation has to be on his guard because of the large number of individuals who feel that they have a precious message to deliver to the student bodies and who request the opportunity to speak. The number of requests made varies from none to 150 a year. Twenty-eight institutions report that all of these requests were considered but few were granted apparently. Speakers were refused permission to address the students in general assembly for a variety of reasons—conflict of dates, lack of general interest in the subject proposed, inability to meet the requested fee, known inability of the speaker to hold his audience, propagandism, extreme radicalism or religious bigotry, and the speaker's desire to raise money for private interest. One institution reported that a speaker who requested an audience was "rarely refused save for moral reasons."

It is interesting to note the large proportion of addresses devoted to foreign affairs. This type of address led all others in general frequency and sometimes in frequency within a single year within the same institution. Cultural subjects came second, technical subjects third, discussion of social and political questions fourth, and questions dealing exclusively with student life or the policies within the institutions ranked last in frequency. Five institutions report the holding of an honors convocation late in the spring when announcements are made of honors and distinctions in scholastic fields won by members of the student body. It would seem to be a wholesome tendency to make academic achievement at least somewhat comparable in the students' eyes to athletic prowess. Several institutions were unable to give any list of recent convocations held and said that no record was available. If the speakers are worth presenting to the entire student body, some record of their presence on the campus should be preserved in some office of the administration.

Although one institution remarked that the attendance at convocation was very poor because the students had to listen to lectures 16 hours a week anyway and felt that additional lectures were an

imposition, it is evident that the land-grant institutions are not unaware of their responsibility in quickening both the spiritual and the intellectual life of their students through meetings other than those of the regular classroom routine. It is also evident that even though the institution itself may heartily abjure any direct hand in providing a religions program for its student body, the students of the land-grant institutions are not spiritually and religiously starved. A vital and healthy student program of religious interest is maintained on practically every land-grant college campus, all the better perhaps for being student initiated. Institutional responsibility for mental stimulus is more whole-heartedly accepted than that for religious guidance.

The problem of the convocation everywhere would seem to be not how to provide good attractions of an intellectually challenging type but how to make such attractions compete successfully with the vast number of extracurricular interests promoted by the students themselves. No institution seems to have solved this problem of competition. Both the religious program and the extraclassroom intellectual program of the land-grant institutions challenge further study in order to reach their full effectiveness for the student bodies.

Chapter IX.—Scholarships and Fellowships

Eight thousand five hundred and seventy-two of the 151,196 students enrolled in resident collegiate courses in the land-grant colleges and universities in 1927–28 took advantage of the opportunities offered in these institutions to reduce the cost of their attendance, by means of scholarships, fellowships, assistantships, and other grants. This number would have been greatly increased had all of the scholarship offerings in the land-grant institutions been utilized that year. An attempt was made to ascertain just what this number would have been and several institutions reported not only the scholarships and fellowships awarded in 1927–28, but also those available but not awarded that year, but so few of the colleges supplied data with reference to the scholarships available but not awarded that this item was not considered in the report which follows.

All of the land-grant institutions reported the award of scholarships in 1927–28 with the exception of Louisiana State University, the Mississippi Agricultural and Mechanical College, and West Virginia University. Of the land-grant colleges in the outlying possessions, only the University of Hawaii reported the giving of scholarships in that year.

The 8,572 scholarships and fellowships ranged in value from less than $49 to more than $2,000. Their total value was between one and a half and two million dollars, an amount which students received without any obligation to repay, except in the higher ranges of values where some form of part-time service to the institutions or to the agency providing the scholarship fund was required. No loan scholarships were included in the report.

The awards showed that the scholarships and fellowships were granted from funds supplied by four major agencies—the State; the institution; organizations of different types, including alumni, clubs, patriotic societies, industrial concerns, etc.; and private individuals.

In a point of numbers of scholarships given, if not in money value, the State was the largest contributor. While only a small number of the States place scholarships in the land-grant institutions, those that do are very generous in their offerings. In 11 States

the law makes definite provision for the giving of free scholarships for use at the land-grant institutions. In 1927–28, 3,706 scholarships were given to students directly from State funds. If to this number be added those awarded by the institutions themselves, presumably from funds appropriated for the general use of the institutions, the number would be almost doubled.

In 1927–28, the laws of Arizona, Florida, Illinois, Indiana, New Jersey,[3] New York, Pennsylvania, South Carolina, Vermont, Virginia, and Wisconsin, provided for the giving of free scholarships to the citizens of the State for use at the land-grant institutions. South Dakota was also among the States in that year having students studying at the land-grant college on scholarships granted by State law, but the practice of giving these scholarships was abolished by the legislature in 1927. As the act was not retroactive, 97 students were attending the South Dakota State College in 1927–28 on scholarships previously granted by the State for a period of years.

The total number of grants made under the various designations of scholarships, fellowships, assistantships, reductions in fees, etc., made by the institutions themselves was 3,466. Presumably the major portion of these grants was made from funds appropriated by the State for the general use of the institutions and were thus indirectly given by the State. While not all of these grants represented an outlay from which the institutions received no return, the larger proportion of them was given to students free from the obligation of service. Less than one-third of the 3,466 students awarded scholarships, fellowships, or other forms of scholarship aid from the funds of the institutions were required to render service.

Organizations of different kinds—alumni, clubs, patriotic societies, industrial concerns, etc.,—place funds for scholarships and fellowships with the land-grant colleges. Six hundred and sixty-four scholarships and fellowships were awarded in 1927–28 from these funds. A very large proportion of these grants being made by industrial concerns for the purpose of investigation of particular problems, the recipients were required more often to render service, usually in the form of research, than in the case of the grants made by any of the other agencies.

Seven hundred and thirty-six of the 8,572 scholarships and fellowships awarded were established by private individuals or from funds contributed by them. These scholarships and fellowships were almost entirely in the nature of gifts upon which the donors placed no conditions of service.

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[3] The granting of State free scholarships at the State university was abolished by act of the New Jersey Legislature in 1929.

The number of men in land-grant colleges granted scholarship concessions in 1927–28 far exceeded the number of women, the awards made definitely to men being 5,028, those made definitely to women 1,423. Two thousand one hunderd and twenty-one scholarships and fellowships were given the sex of the recipients of which was not shown. Although men received more than three times as many awards as the women, 7,009 of the 8,572 scholarships and fellowships given were available to women as well as to men. On the other hand, there were 1,252 scholarships available to men for which women were not eligible while there were but 311 scholarships available to women for which men were not eligible.

Of the 3,706 grants made under State laws, 3,010 were available to both men and women, the remaining 696 being available to men only. Two thousand nine hundred and eighty-five of the 3,455 grants made by the institutions were open to both men and women; 346 of them were open only to men, and 135 of them were open only to women. Both men and women were eligible for 520 of the grants made by organizations; men only were eligible to 81 others, and women only were eligible to 93 others. Of the 736 grants made by individuals, 494 were available to both men and women, 129 were available to men only, and 83 were available to women only.

In the following table are shown the number of scholarships given in 1927–28 by the several donors, the number available to men only, to women only, and to both sexes, and the number of awards made in each case.

TABLE 7.—*Scholarship grants available and awarded to students in land-grant colleges, 1927–28*

Donor	Available to—			Awarded to—			
	Men only	Women only	Both	Men	Women	Both [1]	Total
1	2	3	4	5	6	7	8
State	696	-------	3,010	2,432	384	890	3,706
Institution	346	135	2,985	1,607	628	1,231	3,466
Organizations	81	93	520	509	155	-------	664
Individuals	129	83	494	480	256	-------	736
Total	1,252	311	7,009	5,028	1,423	2,121	8,572

[1] Several of the institutions could not separate the scholarships awarded to men from those awarded to women.

Scholarships for Study in Special Fields

The conditions under which the greatest number of scholarships and fellowships were awarded in the land-grant colleges in 1927–28 allowed the students freedom in the choice of the field of study.

For three-fourths, or 6,425 of the total number of scholarships given, no limitation upon the choice of the field was imposed except that in some cases specification was made that they be used in the general field of the arts and sciences. The number of scholarships given in land-grant colleges in 1927–28 for general study and of scholarships given for study in specially designated fields are shown in numerical order below:

General scholarships, including arts and sciences	6,425
Agriculture	561
Medicine	417
Home economics	174
Education	96
Law	90
Chemistry	88
Engineering (general)	62
Ceramics	48
History	31
English	25
Commerce and business, and botany, each	22
Physics and zoology, each	21
German	14
Political science and psychology, each	13
Electrical engineering	11
Civil engineering and journalism, each	9
Bacteriology and philosophy, each	8
Veterinary medicine	7
Geology and mineralogy, romance languages, mathematics, and music, each	6
Economics	5
Biology, Greek, and mechanical engineering, each	4
Architecture	3
Chemical engineering, gas engineering, forestry, metallurgy, and speech, each	2
Archæology, mining and metallurgical engineering, French, Latin, and pathology, each	1
Miscellaneous fields	298

Of the total number of scholarships awarded in specific fields, the largest number, 561, were given in agriculture. This number would doubtless be increased if the record showed the fields in which the students holding the 6,425 scholarships for which no field was designated were registered. It is doubtful if it would be further increased by the addition of other scholarships awarded in agriculture and home economics for which the records failed to show the number awarded in each of these subjects. The method used in the study for separating these scholarships was by placing those awarded to men in the agricultural field and those awarded to women in the home economics field. The distribution of scholarships in agriculture among the institutions was more general than that of scholarships in any of the other special fields. Land-grant institutions in exactly half of the States—California, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, New Jersey, New York, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Utah, Vermont, Washington, Wiscon-

sin—and the University of Hawaii reported the award of scholarships in agriculture in 1927–28.

The number of scholarships and fellowships in medicine, the next largest group awarded in special subjects, would seem to be out of proportion to the number given in other fields more commonly chosen by students. If the number of grants made to medical students in the land-grant institutions in 1927–28 had been evenly distributed among the 15 land-grant institutions having medical schools, there would have been 27.8 scholarships or fellowships for each institution. As a matter of fact this large number of scholarships and fellowships was given principally at two institutions, the University of Minnesota and the University of Vermont. The grants made at the University of Minnesota, 337 in all, were, with the exception of one fellowship, in the nature of assistantships for which the recipients rendered half-time service and received $800, and in some cases more, and free tuition. Two hundred and ninety-nine of them were given by the Mayo Foundation, 4 by the Miller Hospital Clinic, and 33 by the university. One for $500 given by an individual required no service. At the University of Vermont, 50 scholarships for $100 each were given. These scholarships, the only medical scholarships recorded as being provided for by State law, involved the rendering of no service but obligated the recipients to practice their profession in the State after graduation for the number of years for which the scholarship was used, or to return the amount received.

One hundred and seventy-four scholarships, the third largest group of scholarships awarded for study in special fields, were given for the study of home economics. As mentioned in the case of agriculture, this number may have been considerably increased by the award in this field of scholarships for which no field was specified and perhaps also by the addition of others which were not separated from those in agriculture. An interesting fact concerning the 174 scholarships designated for use in home economics is that 133 of them were given by the University of Illinois. Outside the State of Illinois, only 41 scholarships distributed among the land-grant institutions of eight States and the University of Hawaii designated specifically for study in home economics were awarded by the land-grant institutions in 1927–28.

Engineering students received 139 scholarships and fellowships. Of these, 77 were for study in specialized fields including civil, electrical, chemical, mechanical, ceramic, gas, and mining and metallurgical engineering. The number of scholarships for study in ceramic engineering is surprisingly large compared to the number given in some of the other fields of engineering more commonly offered by the land-grant institutions and more often pursued by students. As in the case of medicine, the scholarships in ceramic

engineering were not distributed among a number of institutions but were confined to two, the University of Illinois and the Ohio State University. Illinois alone awarded 44 of the scholarships in ceramic engineering. The university grants one scholarship in this subject annually to each county in the State.

Between the number of scholarships awarded in engineering and number in the field in which the next highest awards were made—education—there was a decided drop. Ninety-six scholarships, fellowships, and assistantships were given specifically for study in education. Of this number, 76 were given at the University of Florida, 64 of which were awarded by virtue of a State law providing for the appointment of a number of fellows equal to the number of State senators and representatives to study in the teachers college of the university. The other 12 fellowships awarded at the university were given by the institution itself.

Two other subjects in which a considerable number of scholarships were granted were law 90, and chemistry, 88. The University of Nebraska gave 58, almost two-thirds of the scholarships in law. The awards in chemistry were distributed over a number of institutions.

The group of 301 scholarships, fellowships, and assistantships for study in miscellaneous fields comprises chiefly those given by industrial organizations for the study of special problems, the solution of which is of interest to those organizations. It includes also grants made by the institutions themselves for investigation and research in subjects which do not fall in the list of subjects given, as well as scholarships and fellowships reported as being available in a number of fields but without designation of the number given in each field.

Annual value.—The scholarships and fellowships awarded ranged in annual value from less than $49 to more than $2,000. The major portion, 82.2 per cent of the awards, were for amounts ranging from less than $49 to $250–$299. The value most frequently given was $100–$149. Two thousand four hundred and fifty-five, or 28.5 per cent of the total number of grants, were made in the $100–$149 range. Of this number the States gave 1,603, or more than half, and almost one-half of the State awards were in this range. The States gave no scholarships or fellowships valued above $350.

The next highest number of awards was for amounts below $50, and the institutions themselves gave 89.5 per cent of the 1,572 scholarships awarded. It is probable that a large proportion of the awards in the lower value ranges made by the institutions were in the nature of reduction of fees for needy students and not regular scholarships carrying a definite set of conditions to be met. While the grants made by the institutions in the lower levels were almost entirely in the nature of gifts, those in the higher levels entailed the

rendering of some service to the institution, principally teaching, requiring from a quarter to three-quarters of the student's time.

The grants in the lower value ranges were usually made to undergraduate students. With the increase in value, the number of awards made for graduate study increased and those for undergraduate study correspondingly decreased. In the $300–$349 value range and above there were but 143 grants made to undergraduate students, while at this level and above, 1,359 were made to graduate students. Organizations of different kinds gave larger numbers of grants in the higher ranges than in the lower. This is accounted for by the fact that many of the grants were made by industrial concerns for the conduct of special pieces of research work. Only 31 grants were made by organizations between the $250–$299 range and the $750–$999 range, while at $1,000 and beyond 350 were made. The grants in the lowest ranges, less than $49 to $300, were made by such organizations as alumni, clubs, patriotic societies, etc., for undergraduate study.

The grants made by individuals were rather widely distributed throughout the various ranges of values and were given for both undergraduate and graduate work. The range of values in which the greatest number of grants were made by individuals was $50–$75.

In Table No. 8 are shown the annual awards made from funds provided by the States, by the institutions, by organizations, and by individuals, according to values ranging from less than $49 to more than $2,000.

TABLE 8.—*Annual value of scholarships, fellowships, and assistantships awarded at land-grant colleges in 1927–28*

Donor	Less than $49	$50–$74	$75–$99	$100–$149	$150–$199	$200–$249	$250–$299	$300–$349
1	2	3	4	5	6	7	8	9
State	208	456	846	1,603	1	420	162	10
Institution	1,308	347	7	593	130	84	59	37
Organizations	39	60	9	79	45	22	29	7
Individuals	17	195	27	180	19	62	46	61
Total	1,572	1,058	889	2,455	195	588	296	115

Donor	$350–$399	$400–$499	$500–$749	$750–$999	$1,000–$1,500	$1,500–$2,000	More than $2,000	Total
1	10	11	12	13	14	15	16	17
State								3,706
Institution	66	73	387	333	37	4	1	3,466
Organizations	3	5	16	299	24	18	9	664
Individuals	1	23	46	46	8	5		736
Total	70	101	449	678	69	27	10	8,572

The grants made by the State, by the institution, by organizations and by individuals for study in special fields and in fields not specifically designated in which 20 or more scholarships were awarded are shown in Table No. 9. The annual value of the grants made by the same donors in the same selected list of fields are given in Table No. 10.

TABLE 9.—*Scholarships given by the State, by the institution, by organizations, and by individuals for study in certain special subjects and in fields not specifically designated*

Donor	Agriculture	Medicine	Home economics	Education	Law	Chemistry	Engineering (general)	Ceramic engineering	History	English	Botany	Business	Physics	Zoology	Miscellaneous	Arts and science and general
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
State	52	50	----	64	----	----	----	----	----	----	----	----	----	----	1438	3,397
Institution	380	48	141	29	70	68	51	47	21	20	20	14	19	21	86	2,334
Organizations	76	303	17	3	11	7	5	1	5	----	1	1	----	----	5	157
Individuals	53	16	16	----	9	13	6	----	5	5	1	7	2	----	14	538
Total	561	417	174	96	90	88	62	48	31	25	22	22	21	21	301	6,426

TABLE 10.—*Annual value of grants for study in certain special subjects and in fields not specifically designated*

Annual value	Agriculture	Medicine	Home economics	Education	Law	Chemistry	Engineering (general)	Ceramic engineering	History	English	Botany	Business	Physics	Zoology	Miscellaneous	Arts and science and general
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Less than $49	29	----	133	----	----	----	----	44	----	----	----	----	----	----	----	1,365
$50–$74	57	3	5	1	4	----	1	----	1	2	----	----	----	----	----	975
$75–$99	4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	884
$100–$149	351	54	17	----	62	----	5	----	----	----	----	----	----	----	----	1,810
$150–$199	2	1	3	----	3	----	9	----	1	----	----	2	----	----	148	173
$200–$249	31	3	4	82	6	2	1	----	----	3	2	4	3	----	----	425
$250–$299	8	3	1	1	11	----	4	----	1	5	----	----	----	4	2	215
$300–$349	17	8	----	2	----	----	4	----	2	----	----	----	----	----	24	68
$350–$399	1	----	----	----	4	8	1	----	3	----	1	----	3	----	4	51
$400–$499	5	1	----	2	----	7	----	----	1	2	5	----	1	----	----	53
$500–$749	25	4	8	8	----	30	24	----	19	13	10	16	14	14	58	153
$750–$799	18	336	----	----	----	37	12	4	----	----	3	----	----	2	23	232
$1,000–$1,499	7	4	2	----	----	4	1	----	1	----	----	----	----	1	15	22
$1,500–$2,000	5	----	1	----	----	----	----	----	1	----	1	----	----	----	13	----
More than $2,000	1	----	----	----	----	----	----	----	----	----	----	----	----	----	9	----
Total	561	417	174	96	90	88	62	48	31	25	22	22	21	21	301	6,426

Service.—Less than 15 per cent of the scholarships and fellowships given at land-grant institutions in 1927–28 carried the obligation for service. Endeavor was made to classify those for which service was

required along lines of service believed to be most common in institutions of higher learning. Division was made into teaching, research, laboratory, library, clerical, and domestic and janitor services. It was found, however, that some kinds of service required did not lend themselves to grouping under these designations and it was necessary, therefore, to include some forms of service in a miscellaneous group which should comprise such work as might fall under the statement that "some service is required," "correcting papers," "assistance in the department," "work in connection with the project," etc. This miscellaneous class of services proved to be larger than any of the others.

The organizations more frequently required service in exchange for scholarships and fellowships than did any of the other donors, this being due to the fact that the grants made by industrial organizations were usually for the specific purpose of investigating certain problems of peculiar interest to them. A relatively large number of the grants made by the institutions themselves involved the rendering of service. Some of the land-grant institutions find it of advantage to utilize as part-time instructors the services of students in the graduate school in exchange for a financial consideration in the form of fellowships and assistantships ranging in value from about $500 to $1,500. The hours of teaching demanded are usually not so great as to interfere with the progress of the student's work in the graduate school. In the higher ranges of values, from a quarter to three-quarters of the student's time is required. Teaching was given as the most common form of service, 407 scholarships, fellowships, and assistantships involving part-time teaching being held by students in the land-grant colleges in 1927–28. Of these, 391 were given by the institutions.

State scholarships are as a rule free from the requirement of service. In the case of 10 State scholarships only was service required of the holders while attending the institution. Sixty-four scholarships given by the State of Florida to prospective teachers required the holders to teach two years in the State after graduation, and 50 scholarships in medicine given by the State of Vermont required the holders to practice their profession in the State after graduation for the number of years for which the scholarship was used. These two groups of scholarships are included in the table which follows under "miscellaneous" service. As the donors were probably actuated largely by philanthropic motives or by some such desire as that of perpetuating the memory of relatives or friends, the scholarships and fellowships given by individuals usually imposed no conditions

of service on the recipients. Only 15 of the 736 grants made by individuals necessitated the performance of any kind of service.

Next to teaching, research was the most frequent service required. Research scholarships and fellowships were, for the most part, of two kinds—those given by the institutions for research work for the institution in connection with the major field of the recipient, and those given by industrial concerns for research in special problems of interest to the various concerns. Only 59 of the scholarships and fellowships given in 1927–28 at the land-grant institutions carried the obligation of laboratory service, and only 3 of them required library service. It is significant that no scholarships were given which involved the rendering of clerical or domestic services. These are services frequently required in the privately endowed institutions in exchange for scholarships.

TABLE 11.—*Scholarship grants made to students in land-grant colleges in 1927–28, carrying the obligation of service, contrasted with those made in the same year carrying no such obligation*

Donor	Service						No service
	Teaching	Research	Laboratory	Library	Miscellaneous	Total	
State			10		114	124	3,582
Institution	391	129	49	3	256	828	2,638
Organizations	13	50			308	371	293
Individual	3	7			5	15	721
Total	407	186	59	3	683	1,338	7,234

The following table shows the number of scholarships in certain specified fields for which some form of service was required, compared to the number in the same fields for which no service was required:

TABLE 12.—*Comparison of the number of scholarships given for study in certain fields requiring service with the number in the same fields requiring no service*

Curricula	Service													No service							
							Available to—			Awarded to—				Available to—			Awarded to—				
	Research	Teaching	Laboratory	Library	Miscellaneous	Total	Men only	Women only	Both	Men	Women	Both[1]	Total	Men only	Women only	Both	Men	Women	Both[1]	Total	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
Arts and science and general	52	223	10		61	346	9		337	138	31	177	346	814	130	5,136	3,330	1,012	1,738	6,080	
Agriculture	17	5	3		31	56	16		40	56			56	156		355	296	19	190	505	
Medicine		1			401			1	401	368	33		401		3	13	13	3		16	
Home economics	1	4			8	13		7	6		13		13		155	6	3	158		161	
Education		22			64	86	76		10	83	2	1	86		2	8	5	5		10	
Law														1		89	80	2	8	90	
Chemistry	1	2	23		44	70			70	61	9		70	5	2	11	15	3		18	
Engineering (general)	33	2	10	1		46	20		26	46			46	11		5	16			16	
Ceramic engineering														1		47	47	1		48	
History		10			11	21			21	13	8		21		2	8	7	3		10	
English		10			7	17			17	4	13		17	1		7	4	4		8	
Botany	2	5	3		10	20			20	11	6	3	20		2			2		2	
Business		11				11			11	9	2		11	2	2	7	7	4		11	
Physics		15	3			18	1		17	18			18	1		2	3			3	
Zoology	2	3			16	21			21	16	5		21								
Miscellaneous	57	49	5	2	14	127	16	1	110	99	27	1	127	156		18	160	13		173	

[1] Several of the institutions could not separate the scholarships awarded to men from those awarded to women.

Tenure.—The value of the greater number of scholarship grants made to students in land-grant institutions in 1927–28 was enhanced by the fact that the holders were privileged to retain the scholarships or fellowships for more than one year. Only 2,259 of the grants were definitely limited to one year; of the remainder, 383 were for two years, 8 for three years, 2,839 for four years, 55 for five years, and the tenure of 3,028 was either not stated or was given as "not limited." In many cases it was definitely provided that in order to retain the scholarship beyond a year or some other specified period, it was essential that the student maintain good scholarship. It is assumed that this requirement, although not always stated, is, of necessity, a condition governing the award and retention of practically every scholarship and fellowship. It is also probable that it accounts for the award of such a large proportion of the scholarships reported as given at the land-grant institutions in 1927–28 without a definite tenure.

Of the 1,252 scholarships and fellowships available to men only, 171 carried a tenure of one year, 41 of two years, 5 of three years, 859 of four years, and for 176 no tenure was designated. Of the 311 available to women only, 112 carried a tenure of one year, 1 of two years, 1 of three years, 138 of four years, and for 59 the tenure was unlimited. Of the 3,028 scholarships available to both sexes, 1,976 were for one year, 341 for two years, 2 for three years, 1,842 for four years, 55 for five years, and 2,793 had no specified time limit. The tenure of the scholarship awards made by each donor is shown in Table No. 13.

TABLE 13.—*Tenure of scholarship awards made by the States, the institutions, organizations, and individuals*

Donor	Years tenable					
	One	Two	Three	Four	Five	Not designated
1	2	3	4	5	6	7
State	122	210		1,862	55	1,457
Institution	1,592	148	2	754		970
Organizations	200	18	3	75		368
Individuals	345	7	3	148		233
Total	2,259	383	8	2,839	55	3,028

Table 14 shows the ranges in money value, the value in relation to tenure, and the value in relation to service of the scholarships, fellowships, and assistantships available and awarded to men, to women, and to both sexes, in land-grant colleges in 1927–28.

TABLE 14.—*Annual value in relation to tenure and service of scholarships, fellowships, and assistantships awarded in land-grant colleges in 1927–28*

Annual value	Years tenable							Service					No service	Available to—			Awarded to—			Total
	One	Two	Three	Four	Five	Not designated	Total	Research	Teaching	Laboratory	Library	Miscellaneous		Men	Women	Both	Men	Women	Both [1]	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Less than $49	855	6	..	398	55	258	1,572	..	..	..	..	..	1,572	115	138	1,319	487	300	785	1,572
$50–$74	225	17	..	418	..	398	1,058	..	..	..	..	..	1,058	111	52	895	529	264	265	1,058
$75–$99	19	200	..	646	..	24	889	..	..	..	..	..	889	3	11	875	170	74	645	889
$100–$149	369	1	1	694	..	1,390	2,455	..	3	..	..	52	2,400	398	35	2,022	1,873	337	245	2,455
$150–$199	100	15	..	57	..	23	195	..	..	8	..	65	122	12	22	161	130	65	..	195
$200–$249	110	21	..	408	..	49	588	3	14	..	..	7	564	446	17	125	527	56	5	588
$250–$299	40	..	..	190	..	66	296	6	7	4	1	24	254	34	6	256	209	87	..	296
$300–$349	63	10	3	9	..	30	115	2	15	14	..	11	73	16	21	78	78	37	..	115
$350–$399	45	..	..	..	..	25	70	..	..	5	..	5	60	..	1	69	38	28	4	70
$400–$499	75	..	..	17	..	9	101	..	7	..	1	11	82	20	1	80	79	18	4	101
$500–$749	127	94	2	2	..	224	449	74	192	15	1	68	99	39	4	406	314	99	36	449
$750–$999	175	15	..	..	..	448	678	71	152	13	..	408	34	42	..	636	504	44	130	678
$1,000–$1,499	41	2	2	..	..	24	69	13	10	..	..	31	15	11	1	57	60	8	1	69
$1,500–$2,000	12	1	..	..	..	14	27	10	7	..	..	..	10	4	1	22	22	5	..	27
More than $2,000	3	1	..	..	..	6	10	7	..	..	..	1	2	1	1	8	8	1	1	10
Total	2,259	383	8	2,839	55	3,028	8,572	186	407	59	3	683	7,234	1,252	311	7,009	5,028	1,423	2,121	8,572

[1] Several of the institutions could not separate the scholarships awarded to men from those awarded to women.

Scholarships and Fellowships Designated for Undergraduate and for Graduate Study

Of the total number of scholarship awards, 6,804, or 79.3 per cent, were for the benefit of undergraduate students; 57.1 per cent of these were available in the freshman year, while 39.8 were available for any of the undergraduate years. A negligible number were designated for the sophomore, junior, and senior years. As has been shown (page 499), a large proportion of the scholarships, although available in the freshman year and in other undergraduate years, may be held for the length of the 4-year course.

The scholarships given under State law are for undergraduate study and are, for the most part, tenable throughout the entire college course. Three thousand and two, or 81 per cent of those given in 1927–28, were available in the freshman year; 5 were available in the junior year; 5 in the senior year; and 694 were available in any of the undergraduate years. A much smaller proportion of the scholarships and fellowships given by the institutions were available in the freshman year. This is accounted for by the fact that it is a somewhat common practice for higher institutions to give scholarships only after the students have proved their ability to carry on profitably college work. A further reason is that of financial need of the students who are already taking courses in the institution. While 70.5 per cent of the scholarships awarded by the institutions themselves for undergraduate work were available in any year of the course, only 10 per cent were available in the freshman year. In contrast with the State grants, almost one-third of the grants made by the institutions were for graduate study. As has been stated, this is due very largely to the employment of graduate students as part-time assistants in connection with work related to their chosen fields.

The greater proportion of the grants made by organizations are given for use in the graduate school. Practically all those given by industrial organizations are for graduate study and research. Only 42, or 6.3 per cent, of the total number given in 1927–28 were available in the freshman year; 184, or 27 per cent, were available in any of the undergraduate years.

Almost one-half of the grants made by individuals were for graduate study. Although a larger number of those given for undergraduate study were for use in the freshman year than for any other college year, the scholarships designated by individuals for use in the upper years exceeded those designated by other agencies for use in the years beyond freshman.

In Table No. 15 comparison is made of the number of grants made for graduate study with the number made for undergraduate study according to the several donors.

TABLE 15.—*Comparison of the grants for graduate and for undergraduate study*

Donor	Graduate	Undergraduate						
		Graduate or undergraduate	Freshman	Sophomore	Junior	Senior	Unrestricted undergraduate	Total
1	2	3	4	5	6	7	8	9
State			3,002		5	5	694	3,706
Institution	1,017	5	667	26	24	4	1,723	2,444
Organizations	369	22	42	9	33	5	184	273
Individuals	341	14	179	48	26	16	112	381
Total	1,727	41	3,890	83	88	30	2,713	6,804

Conditions of award.—In a large number of cases the institutions failed to report any definite requirements to be met for the obtaining of a scholarship or fellowship. The passing of a competitive examination more frequently determines the award of State scholarships than does any other factor, except State citizenship. Less frequently award is determined by the student's high-school record. In some States financial need is taken into consideration either as a major condition or in conjunction with scholarship record or other requirements.

Two States, Illinois and South Dakota, condition the award of certain scholarships upon the performance of military service during the World War.

The institutions themselves more often base award of scholarships for undergraduate study on the grade which the student attains in high school. For scholarships for use in the later years of the college course, scholarship as evidenced by the standing of the student in the first years of the course is the outstanding requirement and for scholarship and fellowships for graduate study the commonest requirement is a baccalaureate degree from a standard institution. The institutions also quite frequently consider financial need, character, leadership, and promise. Military service, health, and high-school or college activities are less frequently taken into account. Some scholarships, both those given by institutions and by the other donors, as well, carry with them the fulfillment of a number of these conditions.

As many of the scholarships and fellowships given from funds provided by organizations are for the study of special problems requiring of the student the ability to do research work, scholarship is the most common requirement. Scholarships provided by alumni, clubs, patriotic societies, and other such organizations, being generally for undergraduate study, financial need, and character, leadership,

and promise are more frequently taken into account. The conditions for the award of the scholarships and fellowships given by individuals show a wider range than do the conditions of award of the scholarships and fellowships given by any of the other donors. Individuals apparently consider financial need more often than any other condition. A large number make scholarship a requirement; a less number provide that character, leadership, and promise shall determine award. In a few cases military service, health, and student activities are stated as requirements and in several instances the award is made to persons bearing a certain name.

Each of the donors gave scholarships for students from particular localities—State, region, county, city—and three of them in each case specified the schools or colleges from which the students must come.

The conditions of award specified by the donors for the scholarships and fellowships given at the land-grant institutions in 1927–28 are shown in the following table:

TABLE 16.—*Conditions of award*

Donor	Scholarship	Competitive examination	High-school grade	Baccalaureate degree	Higher degree	Financial need	Character, leadership, and promise	Relation to donor	Name
1	2	3	4	5	6	7	8	9	10
State	518	1,575	63			646	278		
Institution	798	107	1,083	677	11	476	305		
Organizations	92	5		15		64	51	1	
Individuals	248	8	16	16	1	316	160	4	4
Total	1,656	1,695	1,162	708	12	1,501	794	5	4

Donor	Nationality or race	Military service	Health and activities	Preparation for ministry	Locality					
					State	Region	County	City	School	College or university
1	11	12	13	14	15	16	17	18	19	20
State		89			3,609				55	
Institution	4	92	55	13	844			2	106	322
Organizations	6	4	27		27	22	15	2	17	114
Individuals	6	43	25	9	61		129	18		191
Total	16	228	107	22	4,541	22	144	22	178	627

Requirements of a scholastic and of a personal nature are more frequently specified as conditions of award for the lower value ranges of scholarships given at the land-grant institutions than for the upper ranges. The passing of a competitive examination, for example, was not required for the award of any scholarship or

fellowship given at the land-grant institutions in 1927–28 beyond the $350–$399 value range, and it was required for only five scholarships or fellowships beyond the $250–$299 range. The reason for this is clear; the States and the institutions give more scholarships of the smaller values than do organizations and individuals. Financial need, for the same reason, is more often a condition of award in the lower value ranges, as is also the prescription of State or county residence. None of the scholarships and fellowships awarded at land-grant institutions in 1927–28 specified State or county residence for scholarships and fellowships beyond the $400–$499 value. Organizations and individuals designated more frequently certain schools or colleges from which the beneficiary must come. In the upper ranges of values the possession of a baccalaureate degree from a standard institution was the most common requirement. Character, leadership, and promise were designated nearly as frequently in the higher values as in the lower.

In the following table the conditions, in so far as they were specified, for the award of scholarships and fellowships given at the land-grant institutions in 1927–28 are shown with reference to their annual values.

TABLE 17.—*Condition of award with reference to annual value*

Annual value	Scholarship	Competitive examination	High school grade	Baccalaureate degree	Higher degree	Financial need	Character, leadership, and promise	Relation to donor	Name
1	2	3	4	5	6	7	8	9	10
Less than $49	119	21	964			52	65		
$50–$74	231	279	71			335	44	2	
$75–$99	370	649				230	3		1
$100–$149	572	202	66	37		796	365	2	
$150–$199	76		61	8		10	80	1	
$200–$249	41	374		27		13	37		
$250–$299	34	165		32		14	29		
$300–$349	43	4		10		23	29		3
$350–$399	10	1		53		17	52		
$400–$499	17			39		1	11		
$500–$749	81			230	11	10	30		
$750–$999	28			253			43		
$1,000–$1,499	29			16	1		3		
$1,500–$2,000	4			2			1		
More than $2,000	1			1					
Total	1,656	1,695	1,162	708	12	1,501	794	5	4

TABLE 17.—*Condition of award with reference to annual value*—Continued

Annual value	Nationality or race	Military service or descendant of war veteran	Health and activities	Preparation for ministry	Locality— State	Region	County	City	School	College or university
1	11	12	13	14	15	16	17	18	19	20
Less than $49		90			855		17	1	56	35
$50–$74	1	131		9	477		20	8	102	92
$75–$99	1	1	5		847		19	1		11
$100–$149	3	5	4		1,767	18	70	1	8	263
$150–$199	4		71		4	2	2	3	4	85
$200–$249	5	1	2		425			4	4	22
$250–$299			24		154			4	2	32
$300–$349					11		9		1	55
$350–$399									1	3
$400–$499				13	1		7			4
$500–$749	1		1							
$750–$999										21
$1,000–$1,499	1					2				1
$1,500–$2,000										3
More than $2,000										
Total	16	228	107	22	4,541	22	144	22	178	627

Chapter X.—Student Self-help and Student Loans

About one-half of the college men and a quarter of the college women in the United States are depending to a greater or less extent on their term-time earnings to pay their way through college, and about the same proportion holds true for the land-grant institutions. In 48 land-grant institutions, in 1927–28, 43 per cent of the men and 24 per cent of the women were gainfully employed, some earning their entire way and others supplementing other income. Approximately 13,000 men and 3,000 women are entirely dependent on their own efforts for their college education.

In 1927–28 the total earnings of self-help students as estimated by 1,000 colleges and universities amounted to $32,500,000; for the same period the term-time earnings of self-help students in the land-grant institutions totaled more than $7,000,000, or 22 per cent of such earnings in the United States. The average land-grant student earns about $150 during term-time; and others earn from that figure up to $360 for men and $315 for women. These figures do not include regular salaries for full-time jobs. During the summer the average college man earns from $200 to $300, and the average college woman from $150 to $250. By regular employment during the summer months, students can earn nearly three times as much as by part-time employment during the college season.

To assist needy and ambitious students in their search for part-time jobs, the land-grant institutions generally are maintaining student employment bureaus, offices, or committees which are located on college grounds where students may apply for work and where citizens may apply for helpers. Thirty-eight land-grant institutions support some sort of a student employment agency for the mutual benefit of students and employers. The first agency to be established was at the University of Illinois in 1895. The average agency has been in existence about nine years. Ten of these employment bureaus are operated with full-time managers whose salaries range up to $2,500 annually; 18 are managed by part-time agents or are combined with the work of the Y. M. C. A. secretaries or of the assistants to the deans of men. The manager in a few institutions is required to have a university education and employment experience before heading up the employment bureau.

Ten institutions provide private offices for the employment bureau and five combine the work with the personnel office. Eleven institutions include the placement of graduates among the duties of the appointment or employment bureau.

To maintain an efficient service for students the employment office must keep in constant contact with jobs, students, research studies, college files, professors, and employers, and must know the general trend of occupations, both local and national. Generally the employment office maintains records of class schedules of students, part-time workers, unsatisfactory workers, regular jobs, part-time jobs, and hourly wages. Half of these offices also keep records of vacation workers, students who are earning their entire way, and term-time earnings of self-help students. A few offices keep additional records of workers who obtain jobs without aid from the institution, of students who work during the holidays or summer, and of vacation earnings. In four institutions such records are made a part of the students' permanent personnel file. Further studies are frequently made by the self-help agencies; 20 have sent out questionnaires among the students for information on personal expenses in college; 19 have made local studies of student employment in college; 16 have estimated the per cent of college expenses earned by self-help students and the number of students that earn all expenses; 15 have made investigations of term-time earnings of college students; 14 have studied summer jobs and vacation employment, and 10, summer earnings. Six of these agencies have made some research on the use of time in college. Such studies are of value in developing local employment bureaus and in winning the confidence and patronage of both students and employers.

Twenty-nine employment bureaus attempt to place students in summer employment or on vacation and holiday jobs. In order to accomplish this employment, offices are kept open during the summer months, newspaper write-ups are circulated, personal contacts with employers are established, correspondence with prospective employers is begun, and cooperation with local clubs and chambers of commerce is sought. Summer resorts are circularized and publicity is had also through advertising, radio, and news items. Big concerns frequently cooperate by employing extra help during the summer months. Speciality selling is also encouraged as a lucrative means for many student salesmen to earn and save during the long summer vacation. The summer sale of books, magazines, and aluminum ware and other specialities have netted thousands of students enough to pay their entire college expenses.

In selecting students for jobs, many employment officers consider need of primary importance. Experience, ability, vocation, and scholarship also are factors which assist the manager to place

students satisfactorily. Very few undertake to place students according to vocational aptitudes or vocational experience.

The amount of employment load advisable with reference to the demands of academic work is frequently passed upon by the dean of men or the dean of women, and some institutions make definite rules as to the amount of work which may be done when a student takes a full-time college course. One regulation permits "only three hours of work per day with a 16-unit course." Another limits a student to 15 hours of college work to 21 hours of employment. Another sets 12 hours of college work as a maximum for students who hold permanent jobs. The majority of college departments suggest from two to four hours of outside employment as the daily period which may wisely be devoted to self-support by an ambitious student. Some institutions state that the college load is of first importance. Most require good health and sound scholarship before permitting much outside work.

About half of the institutions impose other restrictions of some sort regarding employment, although in many instances such rules are waived. One allows no student two campus jobs that pay $100 each; one gives no freshmen employment. Only four have restrictions for men students as to kind of work, and these are chiefly in regard to health or to local situations of questionable character. As to amount of time spent in employment five colleges take into account the need for earning, the effect of employment on scholarship, and stipulate that the outside job must not interfere with regular college courses. Regarding women students, 11 have regulations against night work, work in public places, and factory work. The Dean of women decides upon the desirability of employment, particularly as to its probable effect upon the health of the student. Nine institutions have some rules regarding the amount of time that women may spend in outside employment. Others leave this matter to the judgment of the dean of women.

A follow-up of the students on the job is undertaken in 29 institutions by requiring the student to make periodic reports. Twenty-one institutions obtain reports from employers. Six correspond with parents when it appears that the health and scholarship of the student are being impaired. In the management of all these duties, however, the employment office requires and is given the cooperation of other departments and the use of the facilities of the institution.

Cooperation.—Most of the departments of the institutions cooperate with the employment office. In nine institutions the employment office depends upon the home economics department for cooperation in helping women students to find work. Usually the dean of women officiates, but sometimes the home economics departments place their own students. In the University of California the home economics

department gives special lectures on serving for girls employed in home serving or in tea-room work.

The departments most frequently mentioned as being of greatest service to the employment bureau are agriculture, engineering, extension, chemistry, commerce and business, athletics, economics, experiment station, geology, forestry, language, home economics, music, electricity, botany, library, and university hospital.

Professors in 40 institutions send to the employment bureau information about jobs or prospects. Some try to place their own students, in which case credit is seldom given the employment bureau for the placement. Departments cooperate with the employment bureau by sending notations of jobs, by recommending students who need work, by assisting in employment surveys to standardize work hours and wages, by advertising, by listing jobs available through the several departments, by use of the university printing and mailing services, by reporting on students' abilities and qualifications, and by employing students for work in their own departments through the employment service. A few professors are reported as "indifferent" to the employment service, but the large majority are interested in seeing their students satisfactorily placed.

Town organizations, local clubs, lodges, churches, and other groups of citizens are instrumental in aiding the employment bureau and in giving material assistance to students. Such organizations include local firms, chambers of commerce, Rotary Clubs, Kiwanis Clubs, Lions Clubs, churches and Christian associations, retail merchants' associations, civic clubs, service clubs, luncheon clubs, boosters' clubs, commercial clubs, women's clubs, and lodges.

Jobs.—The methods used to secure jobs for students in land-grant institutions are the usual ones. Of first importance is the personal interview with prospective employers by the employment manager, who visits the local firms in order to find out whether student workers can be used. Advertising through newspapers, through circular letters, and by radio, are some of the means used by 28 colleges. Correspondence with prospective employers is general, although in 19 cases dependence is had on the prestige of a well-established bureau to bring employers and workers together. Eighteen institutions appeal to clubs and town organizations for assistance in placing their students. In order to have a list of jobs that are available to college men and women, nine institutions send questionnaires regarding possible positions to the local firms. A few depend on alumni and on college departments to report jobs available.

Twenty-two institutions inspect jobs before students are assigned to them, but this inspection is done in a more or less cursory fashion, perhaps necessarily so. Conferences are sometimes held regarding the nature of the work to which students will be assigned, the type

of working associates, and other factors which should be considered before placing a student in a position. In some cases dependence is had on the reputation of the employer or the knowledge of the nature of the work to be done. One institution states that it obtains all information possible without actual inspection, and this is probably the method most frequently used. Information also comes into the employment office through reports of students and business men. Most institutions inspect homes where women do housework for their board and room.

When entering upon employment the student is in most instances given a card or letter of introduction from the employment office or from one of the deans. Only two institutions arrange a conference with the employer before the student starts work, six make use of the telephone in sending their students to jobs, and five send the student without introduction of any sort. The sending of a card or letter gives the student an entrée which relieves him of embarrassment that he might otherwise feel, it gives the employer an immediate reference, and it assists in making known the employment bureau to the community.

Local jobs.—The larger the college town, the greater naturally are the number and variety of jobs available. Some of the institutions register more students that there are citizens in the town in which the college is located. Nineteen land-grant institutions are located in villages of fewer than 5,000 inhabitants, 10 are in towns of from 5,000 to 10,000 inhabitants, 12 in cities of from 10,000 to 25,000 inhabitants, and 11 are located in cities of from 25,000 to 40,000 inhabitants. A number of the small towns in which land-grant institutions are located are adjacent to large cities which afford diverse opportunities for student labor. But the time and expense of commuting are factors to be reckoned with by the student who must earn his college expenses. Large institutions enrolling hundreds of students, even though located in small towns, offer opportunities for many self-supporting students in connection with the tremendous amount of labor involved in the housing, feeding, and caring for so many individuals.

All but 8 institutions foster self-help, and 36 out of the 44 reporting believe that it is excellent training and experience. Nineteen seem to feel that it is a necessary evil.

The institutions were requested to point out what in their opinion were the disadvantages of student employment. Listed in the order of frequency the disadvantages mentioned were:

1. The element of time; too much time is spent on outside employment, too little on study; self-supporting students can not complete the course in the prescribed time.
2. It lowers scholarship.

3. Deprives students of social contacts which are worth while.
4. Prevents participation in valuable extracurricular activities.
5. Makes necessary the carrying of a light schedule or else requires the student to overwork.
6. Conflicts with class hours.
7. Impairs health.
8. Causes student to work in order to maintain a higher standard of living than is necessary.
9. Permits irresponsible students to enter upon jobs which they do not properly fill.
10. Creates divided interests and makes difficult the adjustment between studies and work.
11. Employs students in jobs in which there is no vocational training value.
12. Makes school work a drudgery for wage earners.
13. Isolates students from university atmosphere and environment.

All but two land-grant institutions state that the social status of the self-help student is in no way affected by the self-help work. One institution says: "In fact it seems to add prestige. We do not foster this attitude, for many seek employment who do not need it, and thereby contribute to lower academic standards." The faculties are unanimous in the opinion that students who do domestic work are given the same social recognition accorded other students. On the other hand, student opinion in four institutions is that men suffer a loss of social standing when doing domestic work, and the same opinion concerning women is held by students in five institutions. Eighteen institutions believe that students who are employed as waiters and kitchen assistants lose a valuable feature of college life through lack of intercourse at meal time, but 25 think that there is nothing lost from this lack.

A number of institutions report that a large percentage of employers seek new graduates who have earned a large part of their college expenses. Although no estimate is made of this percentage by some of the institutions, which merely indicates that a large number of employers request self-help students, others state that from 10 to 90 per cent of the employers desire to engage students who have been at least partially self-supporting during their college careers. Eight institutions report that the preference is usually given the students whose scholastic standing is average or above; five state that employers ask for such students regardless of scholastic standing.

It is interesting to note that it is generally stated that the scholastic standing of self-help students is average; three institutions report that it is above average and only one reports that it is below.

Student loan funds.—Closely related to student self-help are student loans. A few of the land-grant institutions have accumulated substantial student loan funds. In 1927–28 a total of $653,432 from institutional funds was loaned to students in land-grant institutions.

The Agricultural and Mechanical College of Texas loaned $120,000, the largest amount; the land-grant institutions of California, Illinois, Missouri, and Oklahoma, followed with more than $50,000 each; from $20,000 to $50,000 was loaned by the institutions in Minnesota, New York, Oregon, and Wisconsin; and in 27 other States the land-grant institution made loans of less than $20,000. No loan funds are available in Alabama, Florida, Idaho, Kansas, Louisiana, South Dakota, Tennessee, and West Virginia.

The student loan funds are administered by a variety of different agencies, although control in the majority of cases is vested in a committee of the faculty. Reports show that the assistant to the president has jurisdiction over loans to students in 1 institution, the deans in 3, the business officer in 1, the alumni secretary in 1, committee of the board of trustees in 2, administrative officers including the dean of men and the dean of women in 6, and a faculty committee in 25. The fact that so many different authorities are vested with the power of administering student loan funds indicates the lack of a general policy and a division of opinion as to the most efficacious method of handling them. It appears that the dean of men and the dean of women, who maintain more immediate contact with the personal affairs and the needs of students, and not the academic and administrative officials, would be the proper persons to handle the matter of student loans.

Applications for loans are made to the financial officer in 15 institutions, to the loan committee in 13, to the deans in 6, to the president or his secretary in 4, and to the registrar in 1. Thirty-two institutions grant loan funds to nonresidents of the State as well as to residents.

The business or financial officer of the college or university is the logical person to supervise institutional loan funds and to be responsible for the collection. Careful consideration of the student's budget, his need, his credit, his scholastic ability, and his promise of repayment aids the administrator in making loans. Local conditions determine largely the amount of the loans. In some of the land-grant institutions located in small towns in some sections of the country student expenses are low, while in others located in large communities they are fairly high. In some land-grant institutions large opportunities for self-help are available. There are various other local factors that enter in to vary the amount which it is needful for a student to borrow.

Twenty-one institutions require students to budget their personal accounts before granting them a loan. Such budgets act as a regulator for the student in his expenditures, and serve as a guide for the loan committee. Students are required to show their receipts from

all sources for the current and the previous school years, and to show their expenditures for the previous year and their estimates for the year in which the loan is desired. Students who can make a thoughtful record of these personal financial matters are considered better risks than those who keep no accounts and spend hit or miss as they go.

Student Expenses

Such budgets assist the college in making estimates of student expenses in the institutions. Estimates of the annual cost per student in the land-grant institutions were requested by the survey, and the following table is given as a result of this study:

TABLE 18.—*Student expenses*

Student groups	Lowest			Average			Liberal			Clothes median average	Travel median average
	Low	Median	High	Low	Median	High	Low	Median	High		
1	2	3	4	5	6	7	8	9	10	11	12
Fraternity men	300	500	1,200	425	600	1,500	450	750	1,900	125	40
Nonfraternity men	225	450	1,200	300	513	1,400	375	675	2,000	100	40
Sorority women	300	500	1,000	425	625	1,450	500	750	2,000	175	40
Nonsorority women	200	425	1,000	325	500	1,250	425	663	2,000	150	30

Fraternity men's expenses in the lowest group vary from $300 to $1,200, with a median of $500; the average group in the land-grant colleges varies from $425 to $1,500, with a median of $600 while the liberal group varies from $450 to $1,900 with a median of $750. These men spend an everage of $125 for clothing and of $40 for traveling expenses. Reduced to lowest terms the average fraternity man in the land-grant institutions spends from $500 to $750; the average nonfraternity man spends from $450 to $675; the average sorority girl spends from $500 to $750; and the average nonsorority girls from $425 to $663. These figures exclude clothes and travel.

The median of the minimum amount of money that a student should have available when he arrives at the institution according to the reports of 29 of these institutions is $200, but the amount believed to be desirable varies from $75 to $800. If the student does not have this amount available they do not advise him to register. Ten institutions are more liberal in this respect and one states that "no one asks him about his finances."

Loans should not be made without interest. The interest rates need not be large, and in fact can be made less than the commercial rates; but some interest should be charged. The student should be

expected to pay a reasonable rate, in a business-like manner. If money is loaned free of charge, the student will feel less obligated to pay back the money in a systematic fashion. Generally, interest is charged on the total loaned, at varying rates; 8 per cent is charged in 2 institutions, 6 per cent in 14 institutions, 5 per cent in 10, 4 per cent in 7, and lesser in 4.

Students eligible for loans include first juniors and seniors. These students have generally demonstrated their ability to profit by college training and prove to be better risks, since the chances are high that they will continue their college work to completion and become self-supporting within a reasonable time after graduation. Twenty-eight institutions lend money to sophomores, and 21 lend to freshmen. It is generally held that freshmen are greater risks than other students because they are new to the institution and those who borrow in the freshman year will be unable to continue their college training without borrowing the following years, thereby increasing their indebtness to the institution and requiring a longer term in which to repay their obligations. Nineteen institutions lend to special students, and 18 lend to graduate students.

Generally repayment begins after graduation or after leaving college, in graduated monthly payments. The Harmon Foundation, which has had a wide experience in lending money to college students, states in its bulletin, A Study of Student Loans and their Relation to Higher Educational Finance:

> The installment method of repayment is by far the best, and it need not entail as much accounting as some suppose. There is, however, more than one kind of installment payment plan, and it is necessary to adjust the one used to the student's peculiar needs. The amortized form is no doubt the best. After leaving college the student will be able to work off increasingly larger payments as he becomes better established and his income increased. The interest on the loan can thus be included in each payment and will not fall due in a large amount at an inopportune time. Since the student will be able to make continuously larger payments, it is right that he be required to do so, in order that the money be released sooner to be reloaned to new students.[4]

Placement Service

It is quite evident from the reports of the land-grant institutions that the efforts to help the graduates of these institutions to find positions is a problem of which the administration is becoming increasingly aware. Organization for the placement of teachers would seem to be more advanced than for the placement of graduates of other departments. Yet even here much stumbling and lack of coordination within the institution itself militates against effective placement of the graduates.

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[4] Harmon Foundation Monographs No. 1, p. 104. Harmon Foundation (Inc.), New York, N. Y.

Only 9 of the land-grant institutions report that all placement activities are organized under one central organization, while 29 report that they are not so centralized. Where there is no central placement office, the deans are reported as doing this work in 15 of the institutions, the department heads in 12, the department of education in 15, the department of English in 5, the department of commerce in 3, the registrar in 1, the dean of women in 1, the business manager in 1, the dean of agriculture in 1, and the alumni of the institution in 3. That such placement must be more or less haphazard and that it can not be very effective is apparent. A dean or a department head with a wide acquaintance in his own locality or in his own profession might be able to place a fair number of his students, but certainly the numbers of duties which the deans of these institutions are reported as performing would indicate that they can have but a small margin of time for placement service.

In the nine institutions which have a central office, the name used seems to be usually bureau of personnel or bureau of placement. One institution reported that this bureau was managed by an appointments secretary, but the other eight indicated that there was a head of the bureau, who was called either the head of the bureau of placement or the director of personnel service. The salary ranged from $1,500 to $5,250, with a median at about $2,500.

In 7 of the 9 institutions reporting a centralized placement, the person in charge is a full-time officer, and the number of assistants ranges from 1 to 6. The number of clerical assistants ranges from 1 person giving fourth time, to 6 giving full time.

The placement offices seem to be open practically all the months of the year in all of the places reporting. There is no apparent diminution of the work in the summer months when most of the institutions are not running full force. The placement service seems to be financed from general administrative funds in practically all of the institutions, although two report that industrial organizations contribute directly to this work, and two also report that student fees help to carry the work, even though it is largely supported by administrative funds.

The function of the placement office is reported as finding employment for graduates in 21 of the land-grant institutions, the finding of employment for older alumni is 19, finding part-time employment for self-help students in 13, making outside contacts for students in 14, and placing teachers only in 12.

Although the placement work with graduating students must necessarily tie up very closely with any vocational and occupational guidance which the institution attempts to do, only 11 of the reporting institutions report that they coordinate the placement with the guidance. When, however, they report on the cooperation between class instructors and the placement service, 35 indicate that there

is close cooperation, and only 6 seem to feel that the class instructors lack interest in the placement of the graduates. Twenty of the institutions have worked out an organized method of giving instructors an opportunity to cooperate with the placement service, while 21 report that they have not attempted this coordination. As for motivating the college courses for their practical value in the student's future work, 30 of the institutions are of the opinion that they are doing a fair job, while 11 state that their work is defective here. Many of them report that while there is some such motivation, there could be much more. The courses in which the students evidently find the most direct connection between the subject matter they are studying and the work which they will follow after graduation seem to be engineering, agriculture, education, home economics, journalism, and the courses in the professional colleges.

In 10 of the institutions the study of occupations under the direction of a faculty representative is offered directly to the students, but in 19 there is no such work. Even within the institution the instructors and the general staff do not seem to be kept very thoroughly informed of the work of the placement bureau. In only 14 of the institutions are the heads of the departments directly informed of the work of the department, while in only 9 is this information sent directly to the professors and instructors. None of them makes any effort to inform all of the students of the placement work, but in 10 there is a definite effort to inform the senior students of this helpful agency, while in 2 institutions the departmental students are given information about their departmental agency.

In but nine institutions does the placement office send a letter to each student of the graduating class. Most of the institutions which use this plan ask the students to come in for a personal interview. At Iowa State College this work is carried on as a student enterprise and as part of the student government organization.

Although only 9 of the land-grant institutions have a central agency, 25 report that they feel that the placement of students is adequately handled in their institution, and only 17 are dissatisfied with their work in this regard.

The discussion of occupational problems with students before their senior year takes place in 30 land-grant institutions, yet in but 17 is a student advised of the wide variety of occupations for which he himself is fitted. Guidance in placement in initial industrial opportunities for seniors is provided in 13 institutions, and 18 institutions report that when a student is placed in a position, he has a reasonably clear idea of his destination in the organization. It would seem that these 18 institutions have an extremely optimistic viewpoint. Twenty-seven of the land-grant institutions admit that their vocational guidance and placement is extremely limited, and that they are pretty well dissatisfied with their handling of the problem.

In response to the question as to the per cent of the class of 1928 still undecided concerning their immediate future at the time of graduation, the replies vary from a minimum of 5 per cent to a maximum of 75 per cent. One institution reporting not more than 5 per cent explained that the majority of these were not placed because they wanted a vacation, and not because of lack of oppor-

tunity. Where the placement service is largely organized for teaching appointments, the graduates in the nonteaching field are placed by the deans and heads of departments.

The relation of the land-grant institutions with the outside world into which their graduates go is established by some very definite efforts at cooperation in many of the institutions. Two employ a field representative who spends his time making these outside contacts. In 22 of the institutions, the alumni are said to assist materially in the placement of graduates. In 20 the publications and bulletins of the institutions, themselves, form a valuable means of contact with outside employers. Several of the institutions make use of the radio, a new mode of contact. Only eight use definite newspaper advertisement. The method of establishing the outside contacts does not seem to be very definitely organized.

Nine institutions send letters to business and industrial firms; nine depend upon personal contacts; three depend upon alumni contacts; two invite representatives of industry to come to the campus; two send bulletins of the placement work to such firms; and one reports general advertising in the newspapers. One institution states that it considers the success of former graduates the best advertisement. In five of the institutions the placement office sends letters to out-of-town organizations, asking for definite information about their business, this information being placed at the disposal of the senior class with a view to possible future connection.

The inquiries that they make cover such material as the number of people employed in the organization, the percentage of these who are college men or women, the number of college men or women brought into the organization annually, the departments in which they are employed, the provision made for the training and follow-up of college graduates in the various departments, the scheme of promotion, the type of positions, and the successive steps through which an employee would go. They are also asked to send literature concerning the nature of their product and field of service and territory covered, the history of the company and its policy with relation to its employees.

In 33 of the land-grant institutions there is a definite follow-up of graduates after placement. Eleven of the 33 say that this follow-up sometimes causes them to criticize the company's policy, and to refuse to send other graduates to the same company until conditions have been changed. Five report that they have been successful in helping to change unfavorable conditions.

In 32 of the reporting institutions the employers are said to know the qualifications of the students before employing them. The placement bureau gives this information in 21 of the institutions, the faculty members in 33, employers have a personal interview with the prospective employee in 34, they are given information from the character tests made by the colleges in 6, scholastic records are available in 30, self-help records in 13, athletic records in 22. Only

six report that the only way for employers to know these qualifications is by the old trial-and-error method.

The number of firms contacted in 1927–28 varied from 12 to 827 in eight institutions. Eight hundred and twenty-seven were reported from Purdue University, which has perfected its placement service perhaps more highly than any other of the land-grant institutions, and indicates that the work of the field secretary is particularly effective. The most usual calls for employees in business and industry, as reported by all the land-grant institutions, were as follows: Administrative engineers, aeronautical engineers, civil engineers, electrical engineers, highway engineers, mining engineers, sanitary engineers, turpentine engineers, petroleum geologists, assayists, agriculturalists, dairy experts, farm managers, foresters, chemists, sugar chemists, sugar agriculturalists, biologists, physicists, architects, lawyers, teachers, journalists, accountants, secretaries, insurance salesmen, merchandizers, salesmen, bank clerks, railroad clerks, postal clerks, shipping clerks, tailors, and meat packers.

Industrial firms send delegates to the campus for the purpose of recruiting graduates in 33 of the land-grant institutions. This is encouraged in 32. Advance appointments are made for these representatives in 32 institutions, and opportunities to meet the seniors and students individually and to make employment propositions are facilitated. Such visits seem to be concentrated in the spring of the year. This would be natural in view of the fact that in all of the institutions the largest graduation class comes in June. In answer to the question, "Is an employment service justified in your institution"? 22 replied in the affirmative, and only 7 in the negative.

The most highly developed employment service in all of the land-grant institutions seems to be that for teachers. The department of education handles this work in 33 land-grant institutions, while in 12 it is handled by some other agency. In the 9 having a central employment agency the placement of teachers is handled by this department as well as other placement work. The method of advertising the placement service for teachers would seem to be more highly organized than that of the placement of other graduates. Twenty-four institutions report that they circularize the superintendents of the State, one uses teachers' agencies, two advertise in the State press, three give wide publicity at the time of the State teachers' meeting, and two report that their largest increase in calls has come from the satisfactory service that the bureau itself has rendered.

The number of registrants for teaching positions varied from 14 to 2,557 in the year 1924, and the range for the year 1928 was from 15 to 3,479. Twenty-seven institutions report considerable difficulty experienced in placing all of their graduates, while 13 report no difficulty whatever. The reasons for difficulty given are the oversupply of teachers in 14 cases, racial or religious prejudices in 4, the demand for experienced teachers only in 2, deficiency in qualification of the graduates in 12, too specific jobs in 4, too specific training in 5, the candidates themselves are too fussy in 2, impossible combinations of subjects are required in 2, salaries are too low in 2, and candidates are unable to coach extracurricular activities in 1. While students are recommended according to their major subjects in only 13 institutions, it is quite evident

that this has little effect on the subjects that the teachers are required to handle after they find themselves in teaching positions. Twenty-seven report that they can not confine their recommendations to major subjects only.

In 19 institutions, State limitations in placing teachers affect the work of the placement bureau. This limitation is usually a State requirement in regard to the number of hours of education required as part of the training for teachers in public schools. The requests from employers for teachers are said to come largely unsolicited. The percentage ranges from about 50 to 100, with the median at 60, nine institutions reporting that 100 per cent of their calls came unsolicited. The possibilities of research in the whole placement field are unlimited, and as yet the surface has hardly been scratched.

In 8 institutions, a few job analyses have been made, but 25 report that they have not even attempted anything of this kind. Although 21 land-grant institutions say that they have made studies of occupations in which their alumni are engaged, it is quite evident from the report that some of these so-called studies are nothing more nor less than the "success stories" of alumni as told in the alumni magazines. Since the best test of the efficiency of any institution's work is its success in fitting the students to take their places in the world of affairs, it would seem that research in this whole matter of guidance and placement is decidedly in order. In the meantime, it is to be hoped that more of the institutions will realize their responsibility in helping graduates to make the first adjustment between the life of the college campus and the life of the industrial world.

Chapter XI.—Student Social Organizations

The report up to this point has concerned itself wholly with those services and activities controlled by the institution. While these services and activities intimately concern the life of the student outside of the classroom, their study presents an incomplete picture, since it omits altogether the consideration of the social life of the student, his efforts to amuse himself, to gain some knowledge of the æsthetic fields actually engaging in dramatics, musical productions, forensics, and similar activities; to satisfy his social instincts by the formation of more or less permanent groups; and finally to share in the community life by the assumption of certain functions of government. Some of the activities included in this list are wholly student-initiated and student-managed, and their responsibility is entirely in student hands. Others are joint student-and-faculty, or student-and-administration enterprises carried on for the most part by the students, with advice and some supervision, more or less direct, from the administrative group.

Disinterested outsiders have been assuring students for a long time that what they learn in college makes very little difference so long as they forget it promptly enough, but that what they do of their own initiative in college and the friendships that they make in college will be of lasting value to them throughout their lives. This emphasis has frequently made the students feel that the activities which they themselves conceive and foster are, after all, the true raison d'être of the college.

The survey of this phase of student activities in the land-grant institutions covers, of course, only those activities which are recognized and permitted on the campuses. Although there were 1,300 of these listed, and some of the campuses listed as many as 500, this does not tell the whole story. On every campus there are some activities going forward which the college does not sanction, and of which it is unaware in many instances. These "wildcat" activities range from individual peccadillos to the subrosa meetings of regular groups that have become important enough to join with similar groups on other campuses and effect a semblance of national organization. Naturally there is no report on these outlaw activities included in the survey. For the most part they do not come to official attention, and their participants are careful to avoid, in so far

as possible, any official notice. Many times they are not even known to the other students on the same campus, although frequently, on the other hand, their presence is recognized by the other students. There is, therefore, no way in which one can judge, either the scope or the spread of these activities, or the seriousness of their effects upon the participants. The impression among those dealing with college students, as administrators or as inspectors in fraternities and sororities, seems to be that so far as the organized "wildcat" activities go, they are decreasing rather than increasing in seriousness. They have always existed, since college has always drawn that portion of the youth which has initiative and imagination, and "wildcat" activities call for both. The pessimists need only to read the diaries of some of the college students in the early days at Harvard, Yale, the University of Michigan, William and Mary, the University of Virginia, and some of the other of the oldest and most respectable institutions, to know that both individual and group outlaw activities are no modern inventions. It is small wonder if in this day of organization for its own sake these activities are frequently rather more highly organized than they were in the past.

One type of organization seems to devote itself almost entirely to the cultivation of pseudo-intellectual group interests. Its members are apt to call themselves the intelligentsia and to look down on the bourgeoisie and proletariat, their fellow students, who do not rebel at every sign of social convention or authority. These groups are very loosely knit together, and the personnel changes rapidly, as is inevitable in the case of groupings of such individualistic personalities. The personnel and the interests change not only from year to year, but even from month to month. The only thing that seems to remain is the feeling of superiority. Since they are superior, not only to all those outside, but also to each other, the bond of union is very weak and, fortunately for the rest of the college community, the groups dissolve quite easily. Administrative action is seldom necessary to disintegrate such loosely bound groups. During the last 10 years concerted efforts were made to organize this group of "intelligentsia" in the various colleges for comparisons of views, of methods of revolt, of common interests, and of literature. In order to do this it became necessary to come into the open as college organizations. The glamour then soon faded and sufficient following could not be secured to maintain a publication or to carry on the organization. Apparently, the vast majority of the students in the colleges to-day are little interested in a program of revolt.

Another type of wildcat activity which has little organization is that of the gambling and drinking fellowship. This group too has always existed, and probably in proportion is no larger to-day

than it ever was, although in actual numbers it may have increased with the growth of the student bodies. Since for the most part the members of this group are not long-lived in the college community, it too tends to disintegrate rapidly. Its chief harm is to the members themselves rather than to the rest of the college community.

Still another type of outlaw activity went on for many years under the guise of interfraternal organizations. The organization known as "T N E" was probably the best example of this. Its members were fraternity men, but often their own fraternity brothers did not know of their membership in this other interlocking organization. Its objects were wholly antisocial in the broadest sense. Its meetings were carouses, and its organization was for the wildest kinds of indulgence which boyish minds could conceive. For some years a sister organization of like nature and purpose, known as Chi, or X, existed in some of the Middle Western universities. Its members were women from certain of the leading sororities, although membership was a dark secret. The initiation ritual violated every canon of decency and good taste. The object of Chi was to permit its members indulgences that they could not enjoy openly. Like T N E, this organization had chapters on more than one campus. These chapters maintained a loose sort of national organization.

As soon as the existence of this woman's group was called to the attention of the national Panhellenic, steps were taken to make it impossible for any members of constituent fraternities to join such an organization on any campus. This has resulted in the complete disappearance of the organization. T N E, on the other hand, has turned from an outlaw to a regular and recognized college fraternity, accepted by other fraternities on the same basis as every other member of the interfraternity council. It no longer permits dual membership.

In the eighties the faculty and administrative officers of all colleges held more or less of a laissez-faire attitude toward all student activities. This attitude has changed rapidly in the last 20 years. For the most part, both faculties and administrative officers take an active interest in seeing that the kinds of enterprises in which their students engage are thoroughly reputable. They show interest and some enthusiasm in fostering the really fine student enterprises and are practially unanimous in attempts to frustrate the other kind. To be sure, faculty members are sometimes undiscriminating in their wholesale condemnation of all student activities as distracting, valueless and unwarranted interference with the true work of the college. That the activities may have value for the college, as well as for the participating students, is not even yet fully recognized by the entire faculty group. On the other hand individual faculty

members and administrative officers enter into the interests of the students, help them with their organizations, and are keenly alive to the values offered by such self-directed activities.

As was said at the beginning of this chapter, there is a great number of authorized activities reported from the land-grant institutions, a total of 1,300. While some campuses report as few as 4, others report as many as 500 in active operation, recognized by the institution and given a certain amount of authorization through this recognition.

The material furnished by a questionnaire study has been supplemented in three ways: (1) By a study of the yearbooks published by the students of many of the land-grant institutions; (2) by a study of the student handbooks, pamphlets, and various other types of material which the institutions themselves furnished; and (3) through the cooperation of the National Intercollegiate Association for Women's Self-Government a study not only of the handbooks of women's self-government associations in many of the land-grant institutions, but also of the minutes and proceedings of some five national conventions of this intercollegiate organization. All of this supplementary material has been extremely valuable in filling out the rather meager outline afforded by the replies to questions asked by the survey itself. Although it will not be possible in discussing the various activities to show just where each element of information was secured, an effort has been made to present the picture in proper perspective.

The range of clubs at the land-grant institutions is very wide. They are organized on the basis of interest, and their value and vitality varies as widely as these interests. Many campuses report clubs organized on the basis of the locality from which the students come—town, county, or general division of the State. Judging from the write-ups of the clubs in the yearbooks, even where they are the most numerous, they are not particularly important to the students themselves. Their meetings are infrequent, usually not more than one a quarter or one a semester, and in only one or two of the institutions did they seem to have any other purpose than that of promoting a little sociability. One or two institutions mentioned them as nuclei for helping the incoming freshmen, or for keeping up alumni interest.

In one institution one of their purposes, as shown in the yearbook, was to get together the prospective students from a single locality during the summer vacation and give them information about the college, possibly even advising them about courses of study and living conditions.

Membership shifts fairly rapidly, since the bond of interest is not especially strong. Nowhere were they reported as having faculty

supervision or faculty control but were in every case in the hands of the students entirely. They are not self-perpetuating and their membership is recruited from applicants; practically every one who is eligible because of residence in a certain locality is urged to attend their meetings.

Another group of clubs reported from many campuses were the departmental and professional clubs, such as the Cercle Français, the Deutche Verein, various clubs in the English department, in biology, psychology, geology chemistry, and so on through the whole list of departments of the college. In the universities there are also the professional clubs. Various engineering and agricultural groups illustrate this type of organization. Many of the professional organizations are members of national groups, with chapters on a majority of the land-grant campuses. There is no way of judging how active these groups are, nor how effectively they may be in heightening student interest. They are practically always under joint student and faculty control, and the faculty members of the department seem to take an active interest in their programs. This type of club forms the most direct link between the curricular and extracurricula interests of the students. In the same group belong the athletic and military clubs which were reported from many of the land-grant campuses. These shared the interest of the faculty members of those particular departments, and in at least 14 cases were jointly controlled by faculty and students.

Historically the literary societies were the beginning of all extracurricular organizations. The fraternities and sororities were an outgrowth from them. Apparently the literary societies are distinctly on the wane. Although they still exist on nearly all of the land-grant college campuses, and have a certain vitality on some, in most cases they are not especially active. College students are strongly conservative. Anything that is sanctioned by tradition must be maintained. Nowhere is this point of view more clearly illustrated than in the attitude toward the literary societies, which in many institutions no longer do more than go through the motions of life. On many campuses it is practically impossible to get a quorum to a meeting of one of these literary societies, yet they continue to meet for the election of officers, and the election of new members, and to have their pictures taken for the college annual.

For the men a third form of organization exists, in the college chapter of the lodge. A good many of the large noncollegiate fraternal organizations have collegiate groups. The Masonic order is one of these, and it not only has its regular Masonic lodges on college campuses, but it has a junior organization known as De Molay, which is a sort of preparatory organization for the man who has not at-

tained his majority. These lodges, however, apparently play a very slight part in college life, since they are felt to be rather branches of adult organizations which have their main importance apart from college, and can hardly compete in interest with organizations wholly collegiate. The main reason for including them here is that their presence on the campus means several more organizations which may encroach upon the student's time and offer him the distractions of dances, smokers, and meetings. To the more mature student who is thinking of college as a chance to fit himself into the world of business after graduation, these may afford a more satisfying form of association than the purely collegiate activities, and they probably have their place on the campus for this reason.

On those campuses where fraternities exist, another type of organization is fairly common. This is the interfraternal organization for purely social purposes. Its object is usually the giving of parties, and possibly better acquaintance among the groups represented in the organization. It seldom includes the major portion of the fraternities or the sororities on any campus. Many times it grew up when only a very few chapters were present on the campus, and membership is a mark of the dignity and age of the constituent chapters on that particular campus. No report was secured concerning the number of these interfraternal organizations that exist on the land-grant campuses. They were indicated in a number of places but, since they are usually given rather fanciful names, it was difficult to identify those which are social interfraternal organizations. Far from creating better feeling on the campus, or even in the fraternity body as a whole, they usually serve to make a distinct social line between the older and the newer fraternities and sororities. It is doubtful whether they serve a purpose useful enough to justify their existence. On three campuses they were listed as detrimental to the fraternity group as a whole. On the other campuses they were listed as neutral rather than as actually detrimental. On no campus were they listed as being of real value. Since one of the constant criticisms of student life to-day is its overorganization, the interfraternal groups of limited membership would seem to be among the first that could be dispensed with, particularly since so many of the campuses already have well-organized interfraternity and Panhellenic Councils which could easily expand their programs in such a way as to include the social functions of good fellowship and better acquaintance. In fact, the Interfraternity Council and the Panhellenic Council are far better able to do this particular thing than any interfraternity group whose membership is limited to a few of the chapters on the campus. Here again, however, the fictitious

prestige which attaches to membership in these organizations is so dear to the student heart that members find it almost impossible to take the larger view and dissolve the organizations.

Fraternities and Sororities

The Greek letter organizations are peculiarly an American institution. They had their birth in the same year that saw the founding of our Nation.

These societies originally sprang up in the private college. At the time of their founding no such thing as a State-operated institution of higher learning had been conceived. Greek letter societies were already a recognized feature of college life when the first of the land-grant institutions was opened. The Greek letter society was taken over bodily from the private college into the State-supported institution, with no thought of the fundamental difference of ideals.

How does the Greek letter fraternity differ from the ordinary club or social group? There are two marked differences. The first is that admission is not by application, as in most groups, or on any common basis visible and measurable by tangible standards; but on so subtle a basis that sometimes even the members themselves can not tell why one man was excluded, or another favored. The group is self-perpetuating and the personal objection of a single member can bar the admission of any man. The second difference between this and most other organizations is the permanence of the bond. A man joins the fraternity in his early days of college but the bond is supposed to last throughout life, and the obligations which he undertakes at his initiation are supposed to be binding upon him so long as he lives. In most organizations, if a man finds that he is in a group which he has outgrown, or into which his interests do not fit, he can relinquish his membership with no reflection either upon himself or upon the group from which he withdraws. In the college fraternity, on the other hand, the severance of such a bond is attended with consequences weighty both to the individual and to the group, and a man must be very unhappy, indeed, in his association in the fraternity to bring himself to take such a step.

The purposes of the college fraternities, as expressed in their rituals, are highly idealistic, and show a marked similarity in tone. They all share certain characteristics. They express reverence for the highest ideals of honor and loyality. They profess themselves ready at all times to serve the institution in which the chapter is located. They speak in glowing terms of their devotion to scholar-

ship. Perhaps they should not be criticized for the rather frequent failure of their members to live up to these ideals in their own personal conduct. The facts presented by subsequent pages reveal, perhaps, some of the reasons for some of these failures.

The past 25 years has seen these organizations under fire in the legislatures of many States, and the fraternities have therefore been put on the defensive. The principal charge against them in the State-supported institutions is their undemocratic character. Any exclusive organization which is self-perpetuating and which is in the hands of people as immature as college students, runs the danger of misusing its power of exclusion and flaunting the appearance of superiority. The picture is always very different from the outside looking in, than it is from the inside looking out, as many a student has discovered after he has been initiated in one of these clubs.

In order to understand the college fraternity to-day, one must know something of its history and its growth, since it is no longer merely an undergraduate activity, indigenous to college soil, and wholly controlled by the undergraduate members. In fact, this status was early outgrown and for almost 75 years a form of government which was known as the mother chapter government was almost universal in the few college fraternities that existed. This form of organization gave to the original chapter an autocratic power which is hard to understand to-day. The mother chapter decided such questions as the admission of other chapters to the organization, legislation in regard to some of their internal affairs, and questions that might concern its several chapters on the college campuses of that day. To be sure, fraternity conventions came into being fairly early in the 1830's and 40's, and were democratic in theory, each chapter being allowed a certain number of delegates and having an equal power to vote on moot questions. As a matter of fact, however, distance was so serious a factor in preventing attendance that it was no unusual thing for the members of the chapters nearest the meeting places to have proxy votes for nearly all the chapters located at a distance. This state of things continued up to the time of the Civil War. With that conflict and its disastrous results upon the college world, both north and south, there came a period of quiescence in fraternity activities, and it was not until 1870 that a marked revival of interest developed in undergraduate organization. This date marks a revival of interest in collegiate institutions, and the expansion of the land-grant colleges and the other State-supported institutions of the Middle West.

Side by side with their growth came the growth of the college fraternities, and at this time, too, the sister organizations, originally

called sororities[5] began to develop in a spirit of imitation of the fraternal privileges which the women saw their brothers enjoying. Although two of the sororities claim to have been founded as far back as 1851, none of the present Greek letter sororities has had continuous collegiate existence for that length of time. The first two founded were originally local literary societies, which did not have Greek letter names, and which came under the ban of college disapproval shortly after their founding and were compelled to disband.

There is this striking difference between the origin of the sororities and the fraternities. The fraternities sprang up in private colleges for men before the days of coeducation. The sororities, on the other hand, originated in coeducational institutions, and the segregated colleges for women have been markedly reluctant to admit this form of undergraduate organization. The sorority flourishes in the coeducational college, and especially in the State-supported institutions. Moreover, the sorority profited by its observation of the progress made by the fraternities in their form of government. As a consequence, it never went through the mother chapter stage, but adopted a democratic form of management of its affairs at once.

The present form of both fraternity and sorority government vests supreme authority in the annual or biennial convention. This convention is attended by both active and alumni delegates, both of whom have voting power. The convention elects a group of permanent officers who are supreme in authority on all fraternity matters during the interim between conventions. They have executive, judiciary, and administrative power. They choose officers as executives who act on matters calling for decisions between conventions. The device of geographic provinces has come into being, and the province officers are chosen usually by the National Council. The officers of the National Council are always alumni as are also the province officers. The tendency at present is for every fraternity and sorority to maintain a permanent central office which is a clearing house for all the details of the fraternity. Its officers are paid executives, occasionally chosen by the convention but more often appointed by the National Council. They, too, are always alumni. They give continuity to the policies of the fraternities. Another development of this national control of an undergraduate activity by alumni is the field secretary or visiting inspector, who

[5] Though the women's organizations have agreed to call themselves "women's fraternities," the use of this term in the discussion which follows seems much clumsier than the older term under which the groups were originally organized. They will therefore be spoken of as "sororities" throughout these pages.

makes personal inspections of all the chapters of this fraternity at regular intervals. He frequently also inspects applying groups. He is the liaison officer between the chapters and the National Council, and also between the chapters and the college officials. His inspection includes almost anything from model initiations to better methods of keeping the chapter accounts, and advising with college officers as to personal discipline of individual offenders. His expenses and salary are paid by the fraternity.

In addition to this supervision by the field secretary, the present organization of fraternities calls for frequent report to the central office from each chapter. These reports cover all matters of interest: Participation in student activities, financial status of the chapter, scholarship reports; anything in fact that the national council feels that it needs to know about its chapters. All of the fraternities and sororities also publish magazines which come out with varying frequency, at least three times a year and in some cases as often as six or seven times a year. Many of the fraternities and sororities maintain systems of alumni advisers, who are usually graduates of the chapters themselves and residents in the vicinity, although occasionally these alumni advisers my be graduates of other chapters who happen to reside near the chapter to which they are appointed.

This picture of the national control of these undergraduate activities is necessary in order to understand the cooperation between college officials and the national officers of the fraternities. It is necessary to examine another form of organization also, in order to get a comprehensive picture. This is the interfraternity organization for both the fraternities and the sororities. As far back as 1883, there was an effort to get the fraternities together for discussion of their common problems, but feeling and rivalry were strong, and it was not until 1909 that a permanent conference was organized. Since that time this permanent conference of fraternities has met annually and has discussed a wide range of subjects. Its official name is the Interfraternity conference. It has always regarded its functions as strictly advisory rather than legislative, and it has never attempted to enforce any of its conclusions on its constitutent members. The national officers of the college fraternity are the delegates to the Interfraternity conference. This body has made numerous studies and recommendations which have been accepted voluntarily by the individual fraternities making up the conference.

The intersorority organization displays quite a different condition. The first intersorority conference was held in Boston in 1891, but this did not result in a permanent organization, and it was not until 1892 that a permanent intersorority conference was formed. It took

the name of the National Panhellenic Congress, and it has met yearly ever since. It, too, is composed of the national officers of the sororities, who are all alumnae. Unlike the Interfraternity Conference, however, the National Panhellenic Congress has assumed the power to legislate for its members, and has put into its legislation the teeth of enforcement so that a violating member may be severely punished. The National Panhellenic Congress has passed such legislation as that insisting that every chapter of a national Panhellenic sorority shall have a housemother residing in each chapter house. It has passed legislation that controls the length of time that a student may be a pledge of an individual chapter without initiation, and also legislation as to the possibility of repledging a student whose pledge has expired. It has provided penalties for chapters which appeal from the decisions of local Panhellenic groups by going to law instead of appealing through the channels it has provided for such action. These are only a few instances of the actual control that it has assumed over the undergraduate chapters. As a consequence of this difference of attitude between the Interfraternity Conference and the National Panhellenic Congress, the college Interfraternity Council and the college Panhellenic Council differ decidedly in their attitudes toward their own constituent groups.

Information received from the land-grant institutions indicates that they assume very little direction or control of the fraternities and sororities. When an institution reports that there are certain regulations of these organizations on its campus this frequently means that either the Interfraternity Council or the Panhellenic Council has drawn up regulations; it does not mean necessarily that the college itself has issued the regulations.

The attitude of the heads of the land-grant institutions varies all the way from supreme approval to utter indifference. The president of one is quoted as saying, "I wish every man and woman on my campus belonged to a fraternity or a sorority. My administrative problems would be solved at once." Contrast this with the attitude of another head who states that his institution does not compile the scholastic standing of groups, since the university does not care to recognize these groups as having any bearing on its own rating of its individual students.

The critics of the Greek letter groups charge them with being undemocratic, snobbish, clannish, extravagant, and false to the ideals set forth in their rituals. They are accused of playing politics in all student activities, of controlling elections, of dictating policies in athletics, and of generally trying to run things for their own advantage. Though high scholarship is held up as a fraternity ideal, the

rating of the fraternity groups on many campuses has consistently fallen below the average of the general scholarship of the institution. All of these charges have been brought against the Greek letter fraternities in various legislative campaigns that have been waged against their presence in the land-grant State-supported institutions.

The fraternities themselves have probably profited the most by this open criticism, for in many cases it has led to a housecleaning which has corrected some of the conditions criticized. In defense they have been able to point to one very real service which they have performed for the State-supported institutions, and which the legislatures have failed to provide. This is the provision of housing for the students. The era of greatest growth in the history of fraternities marks the development of their program of building fraternity houses for the living accommodations of their members. It must be remembered that this was no part of their original program, but that they adopted it to meet a real need. Through their housing provisions they have greatly supplemented the dormitory program of the land-grant institutions, and in many cases they have thus provided what the State has utterly failed to give. Properly managed and supervised, these dormitories have given their residents far better accommodations than could usually be found in the commerical lodgings in the communities where the colleges are located. Reports on the housing and feeding of students show how small a proportion of the students of the land-grant institutions are cared for by the institutions themselves in their own dormitories. The magnitude of this service performed by the Greek letter societies must be recognized.

The University of Hawaii, New Mexico, College of Agricultural and Mechanical Arts, Clemson Agricultural College, South Dakota State College, Agricultural and Mechanical College of Texas, and Virginia Agricultural and Mechanical College do not permit fraternities. In addition there are no sororities on the campus at Massachusetts Institute of Technology, Mississippi Agricultural and Mechanical College, North Carolina State College, and the Women's College at Rutgers. Although Mississippi Agricultural and Mechanical College has fraternities, it does not permit them to have houses.

The total number of chapters reported on the campuses of all the land-grant institutions is 82 chapters of national fraternities, 149 local fraternities, 611 chapters of national sororities, and 35 local sororities. These groups house from 25 to 40 per cent of the men students, with the median at 33 per cent, and from 15 to 40 per cent of the women students, with the median at 25 per cent.

The men's houses furnish living accommodations for from 3 to 60 men in each house, and the range for the women students is about the same.

The process of selecting fraternity members has been given an unfortunate term which only too aptly describes it. It is called "rushing," and its mechanics have come to be so complicated that they obscure the real purpose of the operation, that of discovering congenial and like-minded people who will fit into an already amalgamated group. Probably one reason for many criticisms of

the college fraternities is the hysteria which attacks the members of the group at the very onset of the college season. The frantic competition for "desirable" students becomes so keen that ordinary common-sense precautions are frequently abandoned.

In 10 of the land-grant institutions students may be pledged before they register in the college, although 30 insist that they shall have matriculated before they may be pledged to a fraternity. The fraternity requirement in one institution is that the student shall have been on the campus at least 24 hours before he is pledged a member of any fraternity. Even in those institutions where a student must have matriculated before he can be pledged, 25 place their rushing period at the very beginning of the college year, either immediately before or after the opening of the class work. Six report deferred rushing. One of these reports that the men have deferred rushing but that the women have not.

Four institutions report that they have no rushing rules whatever, while 36 have both rushing and pledging rules. Seven of the 36 report that they have difficulty in enforcing the rules they have, while 29 say that they do not. The rushing season varies from three days to two weeks, with only a very few longer than this latter figure. Two report that rushing and pledging are deferred until six weeks after the college year has opened. One reports that this is deferred for men until the beginning of the winter quarter, another reports that it is deferred for women until the sophomore year, and still another reports that it is deferred for women until the spring of the freshman year. In one institution where the rushing is deferred until six weeks after the opening of the college, the pledging is also deferred for an additional six weeks, so that it takes place just before the Christmas vacation. In one other institution, the report states that rushing begins with matriculation, but extends through the entire semester, and pledging is not made until the end of the first semester.

In most of the land-grant institutions, there is no requirement of scholastic accomplishment for pledging. Only 10 report any requirement beyond the simple one of matriculation in the college. The tendency in those reporting additional requirements would seem to be the attainment of a C average, or a ranking of satisfactory in the college work. One institution requires a C average in 75 per cent of the work; one requires 70 per cent and 12 credit hours in the two semesters; one requires that the student be registered for at least 12 hours of work and maintain an average of 65 per cent. One reports that the men have not made any regulations covering pledging, but are tending in that direction, and are expected before long to insist on a C average for pledging. Of course if the pledging is done at the moment of matriculation, there can be no question of any scholastic requirement, since the student has not been in the institution long enough to establish any scholastic record. The brevity of the rushing period would also militate against real acquaintance.

Competitive entertaining and display, high-powered salesmanship, and many times underhand methods to disparage rival fraternities are means which fraternities use to exalt themselves in the eyes of the "rushees." The whole process of displaying their wares negates the principle of tested congeniality. The mutual distrust and hard feelings engendered at such a time may poison fraternal relationships on a campus for weeks after the dust of battle has died down, and the intensity of rivalry at rushing time is one of the arguments frequently advanced against the fraternities and sororities. The

people who inveigh against this feature of fraternity life seem to forget that it is not inherent in the organization of fraternities themselves, but is an excrescence which has grown to such proportion that at times it seems to obscure the real purpose. Fraternities have it in their own power to make this criticism invalid.

The sororities have developed an additional device for safeguarding the inviting of new members into their groups. Because of their distrust of each other and their fear of outside influence being brought to bear on rushees, they have developed what is known as "preferential bidding." This device arranges for the handling of all invitations through a neutral, trusted, liaison officer to whom all of the sororities submit all of the invitations to their rushees. The rushee is then sent a notification blank on which she is requested to list in the order of her preference the names of three or four sororities which she is willing to join. This sheet is sent back to the liaison officer who thereupon delivers to her the invitation from the sorority corresponding to the one in first order on her list. For instance, if she has listed three sororities, and has an invitation from the second and third, but not from the first of her preference, she would receive only the invitation from the second sorority. The invitation from the third would be sent back to the sorority unopened. The object of this elaborate system is twofold. It is supposed to guard against the personal pressure that might be exerted by verbally inviting the rushee to membership, and it is supposed to give every organization interested an equal chance for consideration by the rushee. In addition, it is devised to prevent a rushee from bragging that she had rejected invitations from a considerable number of sororities. Since she receives only one invitation, she can not be sure that she had any from other organizations.

In 10 of the land-grant institutions both men and women use this devise, and in 16 additional institutions the women alone use it. In 21 of the land-grant institutions only one invitation is issued to a student. When one has evidence of the speed with which the grapevine telegraph works on any college campus, so that every group is practically sure of the identity of those rushes to whom each other group gave "bids," the elaboration of this precaution becomes somewhat amusing. So elaborate a system would never have grown up if there had not been gross violations of the agreements drawn up in good faith between fraternities for their own government.

In 16 of the institutions there are no rules governing the initiation of pledges into fraternities. Each fraternity draws up its own procedure for initiating its pledges. Many fraternities, of course, have national regulations regarding scholastic attainments of pledges which are binding on each chapter. Twenty-eight institutions report

some regulations in this matter, although in no case is the regulation imposed by the authorities of the institutions. Where there is a regulation regarding scholastic attainment, it tends to center at the scholastic average for the institution. A few institutions report a definite time requirement, such as the passing of one semester of work, the passing of 12 hours of work, and in two institutions the passing of an entire year of work. Seven institutions report that the requirement for women is higher than that for men, as the Panhellenic regulation is stricter than the interfraternity regulation. The matter of requiring the pledge to attain a certain scholastic standing is in the nature of a safeguard for the fraternity, since the student who can not carry a fair grade of scholastic work does not stay in the institution long, and therefore is a liability rather than an asset to the group which has pledged him. Moreover, many groups are required by the institution to keep up a certain scholastic average for the entire fraternity, and a failing student brings this average down woefully.

The time during which the man must remain a pledge varies widely in the various institutions. In some institutions he does not have to be a pledge for any specified length of time and the date of his initiation is governed entirely by the regulation of the individual chapter. In others he must remain in this anomalous situation of pledgehood, belonging to a group and yet not being a member of it, for as long as an entire year. While a fraternity doubtless gains something from a period of pledge-training, in that it may use the time for definite instruction on the history, traditions, and standards of its group, and while it may also need some time to test out the scholastic ability of its neophytes if it has taken them on face value at the moment of their entrance to the college, too long a period would seem to be a mistake, since it offers temptation to treat the pledges like the "fags" of the English public school.

Reports on the type of initiation employed by fraternities show only 4 institutions in which the initiation ceremony partakes at all of the nature of hazing, although 7 institutions reply that they have no legislation forbidding hazing, and 11 report that there has been no effort made to control horesplay or "hellweek" during fraternity initiation. The women's groups never had a mock initiation at all comparable to that of many of the men's organizations. Both the National Interfraternity Council and the National Panhellenic Congress have gone on record as disapproving strongly of this type of initiation ceremony, not only because of the danger to the pledge, but also because of its lack of dignity and its inconsistency with the whole spirit of initiation conducted as a solemn ritual. Twenty-eight of the land-grant institutions report that no

form of public initiation is allowed on their campuses. Fifteen institutions say that initiation ceremonies interfere somewhat with class attendance, and 15 also report that initiation has in the past occasionally endangered the health of students, although one qualifies this statement by saying, "through loss of sleep."

In 21 of the land-grant institutions some faculty committee or faculty officer passes on the eligibility of the pledges for initiation, and only 7 report that fraternities ever break this rule. Another institution reported that the fraternities never break the rules, but listed two penalties as imposed for such infraction.

The penalties listed for the breaking of this requirement are as follows: In three institutions the fraternity violating the regulation forfeits a bond; in two the name of the fraternity is published in the college paper; in four the men in the infringing houses are barred from activities; in five the fraternity is prevented from pledging for one year; in eight the freshmen who have violated the regulation are temporarily barred from initiation; in two a fine is imposed; in two the members of the guilty group suffer restriction of dates; in two, charters are suspended; in one the chapter is placed on probation; in one the chapter is expelled from the Interfraternity Conference; in one the penalty is more flexible and is fixed by a faculty committee, and in another the penalty is fixed by the dean.

The preceding discussion indicates that a great deal of authority is vested in two bodies—the Interfraternity Council for men, and the Panhellenic Council for women. In 37 of the land-grant institutions there is an interfraternity council for men, variously named; in some schools the organization is called the Men's Panhellenic Council, but with the formation of a National Interfraternity Conference the tendency seems to be in the direction of using the same name for the undergraduate interfraternity body for men. In all of the land-grant institutions where sororities exist the organization is called the Panhellenic Council. The national body is the National Panhellenic Congress. On all but 10 of the land-grant campuses the councils for both men and women include local organizations as well as chapters of the national organizations.

These councils are the governing bodies for all of the groups organized as social fraternities and sororities on the campuses. Their functions are largely legislative since they spend much of their energy in drawing up and administering the regulations under which the competitive activities of the group are conducted. They make the rules concerning rushing and pledging, they set the dates for the activities on which there is mutual agreement between the chapters, they pass on violations of these regulations, and frequently they administer penalties for such violations. Recently there has been a strong tendency, at least in the women's panhellenic organizations, to get away from this purely regulatory function, and to make themselves organizations for promoting better feeling between the groups and for doing constructive work on the campus.

To this end they are fostering an intergroup social life that bids fair to break down some of the barriers of suspicion and exclusiveness between sororities.

Some faculty or administrative liaison officer frequently sits on both the Interfraternity Council and the Panhellenic Council, usually in a purely advisory capacity. Except for this officer, the councils are composed entirely of students, with the occasional inclusion of one nonvoting alumni member from each group. The usual organization calls for a senior and a junior representative from each member group.

Twenty-three of the land-grant institutions reported that there was faculty supervision and cooperation in conducting the Interfraternity and Panhellenic Councils, while six reported that there was none. The dean of men was the college officer most frequently mentioned as sitting with the men's council. The liaison officer is the dean of men for the men's group in eight of the institutions, while in six he is a faculty adviser elected by the men's group itself. In the women's Panhellenic Council, the dean of women sits as a liaison officer in 21 of the institutions, a faculty adviser in 4, and alumni advisers in 2. It will be seen from this that the dean of women is in much closer touch with the sororities than the dean of men would seem to be with the fraternities.

Since these councils legislate on matters which profoundly affect a large group of students and which also affect the conduct of certain other activities aside from those controlled entirely by students, the practice of having some one college officer who is continuous in the service of advising the group and who can furnish the element of stability to a changing council would seem to be the part of wisdom. This person should be some one who is familiar with the administrative policies of the institution, since many activities of fraternities and sororities have a very direct effect on such matters as the conduct of freshman week. When rushing goes on during the same preliminary period as the freshman week exercises, it affects most seriously, not only the group that is being rushed, but also those who feel themselves pointedly omitted from an activity so desirable in student eyes. The whole program for socializing the freshman class during the recreation periods of freshman week is cut into by this practice of giving a comparatively small group of entering freshman so highly specialized a social program that they have no interest in or are too tired to participate in the general program provided for the freshman class.

The question of the scholarship of fraternities has been raised over and over again, both by the proponents of fraternities and by their critics. It is a common practice in the land-grant institutions, as well as in other collegiate institutions, to compile the scholarship of certain groups in comparison with each other as well as with the average of the whole student body. Thirty-seven of the land-grant institutions report that they compile the scholastic records of the

fraternities and sororities on their campuses and publish these reports annually. Certain of the institutions compile the scholastic ratings of other groups in the same way. Some of these other groups are dormitory residents, cooperative cottage residents, members of professional groups, and occasionally residents of approved houses. It is then possible to compare the scholastic achievements of the members of these special groups with the scholastic average of the institution as a whole. There are two types of scholastic ratings. The first may be called the "honor point" rating. This system assigns an arbitrary value to the grades obtained in collegiate work.

The second system is that approved by the American Association of Collegiate Registrars.[6] It is similar in principle to the first one, but differs a little in application. The average of the student body is taken as zero, and the range of grades from this figure to the highest possible grade is divided into 10 equal divisions, numbered from +1 to +10, +1 being the first above the student average. Organizations whose averages fall into this +1 division are given a rating of +1, etc. Negative marks extend below the student average by increments applied to any system of marking—numerical or literal.

It is at once evident that each organization is vitally interested in one question, that is, which of its members are going to raise the average of its scholastic rating as compiled by the college authorities when the relative fraternity attainments are published. It would be decidedly advantageous if members who are taking graduate work were counted, because graduate students are usually those who have proved their scholastic ability. In addition, it would be advantageous if pledges were disregarded in compiling the scholastic average, particularly in those institutions where the student is pledged as soon as he reaches the campus, because here, of course, his scholastic ability is a doubtful quantity. It would be equally advantageous to disregard the grades of those persons who, for one type of misconduct or another, are suspended either by the fraternity or by the institution. The grades of graduate members are seldom reckoned in making the scholastic average of a student body. It would be unfair to the school as a whole to eliminate the fraternity's mistake from reckoning its average, since in choosing its men it is supposed to take them for better or for worse. Moreover, the fraternity has its pledges under its care and they are influenced by its example and ideals from the very first of the school year. There seems to be no reason, therefore, why pledge grades should not be counted in the fraternity's.

The practices of about half the institutions in counting the membership of a group for purposes of scholastic rating favor the fraternities. For rating purposes the following fraternity initiates were not counted as members of fraternity chapters. In 10 institutions graduate students; in 4, inactive

[6] Proceedings of American Association of Collegiate Registrars, 1925, p. 110.

members; in 3, members of the fraternities suspended by the national organization; in 1, members suspended by the university because of low scholarship; in 1, freshmen; in 1, those initiated after the mid-semester; in 1, those taking less than 10 hours of work; in another, those taking less than 6 hours of work. Thirteen of the reporting institutions count every one who is connected with the chapter. In 18 of the institutions the marks of those students who have withdrawn from college during the term or who have been suspended are counted in with the active members. Eighteen institutions report that they are not so counted. In 18 institutions the marks of pledges are included in the fraternity's record, while in 22 they are not so included. In 17 institutions the marks of expelled initiates are included, while in 20 they are not.

It will be seen that when the pledges' grades are counted in with the fraternity average, it is the fraternity's responsibility to use some means to bring these newly selected prospective members up to reasonable performance in their scholarship. Only six of the reporting institutions say that the fraternities and sororities do not provide supervised study for their pledges. The commonest means of assuring good scholarship among the pledges is to require a certain scholastic average for initation. The women use this method much more commonly than do the men, and the reports would indicate that in seven of the land-grant institutions the women's requirement is apt to be rather stricter than the men's. Only two institutions said that they did not feel that the scholarship of the chapter was a good index of its condition. For some years the figures as they have been published in the press of the country, have indicated that the fraternities are rather below the general scholastic average in the various institutions, while the sororities are on the whole above the general average. In only a very few institutions has the sorority scholarship fallen below that of all the women in the institution.

Charts are published regularly showing fraternity ranking in 32 of the institutions, but are not published in 8. In 24 institutions, these charts also indicate the improvement or retrogression of the individual chapters. This material is compiled by the registrar in 18 institutions; by the dean of men for the whole institution in 13; by the dean of men for the men, and the dean of women for the women in 3 additional ones; by a committee of the faculty for the whole institution in 13; by the dean of men for the men and the dean of the faculty in 3; and in one by Phi Kappa Psi, a national honorary fraternity which is supposed to stand for all divisions of collegiate attainment, as Phi Betta Kappa stands for the purely academic. In 22 institutions all delinquent individuals are reported to the chapter, while in 15, this is not done. In 24, the grades of all members are reported to the chapter, while in 11 this is not done. In 23 institutions, these reports are also sent to national headquarters, while in only 9 they are not sent.

The penalties imposed by the institution on chapters for low scholastic attainment are as follows: 22 send the grades to national headquarters; 2 suspend individual members from the chapters; 24 suspend individual members from college; 23 bar pledges of low standing from initiation; 16 place chapters on probation. There would seem to be no reason why members of fraternities should be treated in any different way from any other student on the same campus.

In addition to the discipline imposed by the institution, the fraternities themselves take certain action on individual members for low scholarship. The posting of names is used by 20 institutions; reporting study hours is used in 20; notification of parents is used in 7. The student is deprived of chapter honors in 14; is deprived of social privileges in 26; is deprived of

house privileges in 13; he is advised to withdraw in 12; he is given special tutoring in 25; he is denied voting privileges in 12; and in 25, the chapter cooperates with the dean in dealing with individual cases. As an inducement to high scholarship, a freshman cup or pledge cup is offered by the Interfraternity Council and by the Panhellenic Council in 28 institutions. The practice of having a freshman cup awarded within the chapter for high scholastic attainment would seem not to be so popular since only two report this measure.

A study of the grades of freshmen women who were pledged to sororities over a period of two years in one of the land-grant institutions recently showed that those pledges who did not make a sufficiently high average to be initiated at the end of their first quarter and made it with difficulty by the end of the second quarter, thereafter dropped back to the lower performance and remained in college a comparatively short time. While this study is by no means complete, it lends strength to a suspicion held for some time by many observers, namely, that the strenuous work done by chapters to put a failing individual over the hurdle which he must pass in order to be initiated is so much wasted effort, since in all probability he will not make so good a grade again, and the chapter might better have put its effort on the scholarship of the members who had already showed that they could do passing work.

A good deal of dissatisfaction has been expressed, both by fraternity members and by others, with the practice of requiring any certain scholastic performance for initiation or continued membership in fraternities. The contention is frequently made that individuals have other qualities which make them such desirable members that their scholastic deficiencies should be overlooked. These critics lose sight of the fact that the fraternity is an organization whose members are first of all students in collegiate institutions. The first requirement for such membership, therefore, must necessarily be ability to carry college work at least as well as the average student, so that the possibility of graduation from the institution will not be endangered. If the fraternity is merely a social club, there would seem to be no good reason why it should confine its membership wholly to regular matriculates in collegiate institutions. Since, however, the fraternities put this barrier up themselves, they should at least see to it that their membership is chosen from those who have a reasonable expectancy of remaining students in good standing in their collegiate institutions.

When the college fraternities were first established, they had no thought of furnishing housing for their members. In fact, the earlier fraternity houses were not in any sense residences, but rather club rooms where their members might gather for meetings, or spend their leisure time. Many of the criticisms of fraternity houses date back to this period when the student seemed somehow to have more

leisure time than anything else. It was not long, however, before the fraternities saw that their members needed living quarters much more than they needed a mere center for social gathering. With the spread of fraternities to the land-grant and State-supported institutions, the fraternity house, as it is known to-day, came into existence and spread rapidly. The amount of money invested in student-owned and operated homes in the institutions of the United States is stupendous. In 1923, it was reported as more than $24,000,000. The reports on the land-grant college survey were too fragmentary to give a basis for figures on these campuses. It is a fact, however, that practically all of the national fraternities and sororities operate houses on these campuses and that for the most part these houses are owned outright or are in process of acquisition by the groups themselves, or by their alumni. Even where the fraternities and sororities rent houses, as is frequently the case with local groups, they own the furnishings, and the value amounts to no inconsiderable figure.

In 34 of the land-grant institutions, the fraternity and sorority houses are regarded as a distinct substitution for dormitories, and in 20 they are regarded as a fairly adequate substitute for home life. Eighteen institutions have faculty committees that exercise some supervision over chapter houses, although frequently this is no more than the inspection required for all student residences. In the same number of institutions the establishment of new houses must be approved by some regularly designated authority—a faculty committee, the dean of men and women, the housing committee, the president of the institution, or the executive council. The chapter houses are subject to taxation like any private housing enterprise in 23 of the States, while in 13 they are exempted on the ground that they are performing a definite service to the State, and are not operated for profit. The cost of living in fraternities is reported as higher than in other living quarters on the campus in 26 of the institutions, and either no higher, or actually lower in 13.

One of the chief arguments against deferred rushing is that it would deprive the chapter houses of their residents during at least a certain portion of the college year, and that this would work so serious a financial hardship that it would endanger their very existence. Pledges are permitted to live in the chapter houses in 33 of the land-grant institutions, and are not permitted to in 12. The discrepancy of these figures with other figures furnished is explained by the fact that the regulations for men and for women differ on the same campus in several cases. Where the deferred rushing system has been tried, the results have showed that the fraternities and sororities take especial pains to insure the return of enough upperclass members the following year to fill the house adequately, instead of depending on the possible acquisition of freshmen during the rushing season. The argument of empty houses, therefore, seems to be a negligible one.

Apparently the institutions do not attempt such regulation of living conditions within the fraternity houses. Only 9 report any

regulation of the number of students per room in the fraternity houses, while 13 report no such regulation. The figures on the number of men and women in individual rooms do not mean much, since in the report no difference was made between the large dormitory rooms where from 5 to 50 people might sleep, and the single or double room where the student does most of his living. In 16 of the institutions double beds are still in use in the fraternity houses, while in 32 double-deck beds are used. Twenty-five institutions report themselves as satisfied with the latter arrangement.

The tendency on the land-grant campuses, as elsewhere, has been decidedly toward more expensive houses, more elaborately furnished. Here again the pressure of competition is very strong. As soon as one group erects an imposing, up-to-date structure, and furnishes it elaborately, other groups become dissatisfied with their less pretentious quarters. The mistaken notion seems prevalent that a new and beautiful house is bound to attract desirable pledges, although more than one group has found to its sorrow that the pledges may be scared away by the sign of extravagance.

In 34 of the land-grant institutions the fraternities for men are not required to have house mothers in their houses, although individual fraternities may have house mothers resident in the fraternity houses. Twenty-one institutions expressed themselves as favoring the requirement of house mothers for all such living groups, and only 11 disapprove the requirement.

Every land-grant institution which permits sororities has house mothers resident in the women's sorority houses. It is impossible to say whether or not the institutions themselves would make this requirement, independent of the sororities' own action, since the National Panhellenic Congress voted several years ago to require an older woman resident in every house of every national panhellenic chapter. National Panhellenic Congress further provides that the house mother shall keep in close touch with the dean of women in the institution.

The institutions were asked to list the arguments for and against the maintenance of house mothers in the fraternity houses, and it was interesting to find that the same argument did duty on both sides of the fence. In some of the institutions where the practice has been tried, the report ran that the house mothers saved money because of their close supervision of financial matters, while one of the chief reasons advanced against having them was that student groups felt they could not afford to pay the salary required for the right kind of a house mother and that they could better use the money in lowering their own living costs. Again, from institutions where there are house mothers, the statement was made that the right kind of a

woman with high standards of conduct improves the morale of the group; and from the opposition the argument is advanced that it is impossible to find the right kind of woman with the high standards necessary to improve the morale of the group. The case against house mothers would seem to be pretty well epitomized by two institutions which made the following statements: "The boys are old enough to know how to conduct themselves properly and to manage their business affairs. Furthermore, the university is cognizant of this fact." This statement, by the way, comes from an institution which has no regulation whatever as to where, how, or under what rules the students may live, which furnishes no residences or eating facilities, and which does not inspect the private quarters were the students are housed. In short, it completely disavows any responsibility for those educational processes that take place outside the classroom. The other institution which voices objection said: "Most students living in fraternities seem to be opposed to the idea of house mothers because such a system would tend to take away some of the so-called liberties of the students. They would not like the idea of having to be on their good behavior at all times while in the house. The fraternity is a man's organization, and there is no place in it for women, even older women such as the house mother." One other argument mentioned a number of times was that the houses were not properly equipped to provide the privacy and adequacy of living quarters that the right sort of house mother would demand.

The institutions which voiced hearty approval of house mothers put it on the grounds of improved morale, better manners, higher standards of cleanliness, better feeding, better health, a more homelike atmosphere, improved tone of conversation, prompter care for members who are ill, and the general helpfulness that a woman of fine character, sufficiently older than the student generation to really mother the boys, could give.

The amount of help given by the institutions to fraternities is of varying kinds and degrees of importance. There may be definite recognition of the value of the fraternity system through talks by prominent members of the staff to the fraternity men themselves or to the student body as a whole. Eight of the land-grant institutions report that the president explains the objectives of the institution especially to fraternity members and pledges. The dean of men does this in nine institutions; faculty members in four; the president of the Interfraternity Council in one; the dean of women for the women students in three; and the head of the chapter in one. Another of the ways in which the institutions may offer definite help to the fraternities and sororities is through cooperating committees

that supervise the chapter houses. Eighteen of the institutions maintain this relationship.

When it comes to more definite assistance, however, such as would be afforded by a central purchasing agency or an institutional auditing committee, or to advice by an institutional dietitian on the fraternities' food service, the story is quite different. Only 3 of the land-grant institutions report any central purchasing agency, as against 36 which do not have it. In none of the land-grant institutions does a commercial feeding corporation manage the table in the fraternity houses. In 4 of the land-grant institutions there is an institutional auditing committee which goes over chapter accounts, while in 35 this service is not rendered. In only 2 of the 39 did the institutional dietitian give any advice or help to the fraternities in the matter of their feeding. If, however, the college really regards the fraternity house as a necessary substitute for dormitories, it would seem to follow that the institution should assume more responsibility in the fraternities' provisions for its students. The fraternity members are still members of the college community, first and foremost, and their health and well-being are just as important to the institution as is the case with any of its other students. Even in the matter of requiring faculty advisers who shall be in close touch with the chapters, the land-grant institutions have largely failed to assume responsibility. Only 13 of the institutions report that all their chapters are required to have such advisers, while 24 say that they do not make this provision. To be sure, it is increasingly the case that the national fraternities find members of their own brotherhood on the faculty of the institution, and it is pretty generally understood that these faculty members of the fraternities keep in close touch with their chapters. On the other hand, this arrangement depends entirely on the voluntary assumption of the responsibility by the faculty man, and it is in no way expected of him by the institution.

The land-grant institutions have taken very lightly their responsibility for inspecting and regulating the living quarters of their students. Twenty of them report inspection of chapter houses, while 17 make no such inspection. The inspecting is done by such officials as the dean of men and the dean of women and their assistants; the housing committee, if there is such a committee in the institution; the faculty advisers or alumni advisers of the chapters; the comptroller of the institution; and the head of the housing bureau. Two institutions reported that the inspecting was done by the national fraternity visitors, but this could hardly be reckoned as a college inspection. When the inspection is done by a college official, the fraternities are usually not notified in advance as

to the time of such inspection, but in nine institutions such notification is given. The objectives of inspection are twofold (1) to see under what conditions the group is normally living, and (2) to see to what degree conditions may be improved in a particular house. On the whole it would seem a mistake to notify chapters in advance. Of course, this would depend somewhat on which of the objectives was paramount in the inspector's mind. If the second objective was the more important, perhaps better results would be obtained by letting the students do their periodic housecleaning and get the place into spick and span shape. In this case, however, inspection should be repeated frequently in order to keep the standard up. Seven of the institutions report that the value of these inspections is almost entirely confined to such a periodic housecleaning, while 14 feel that it is not.

Where inspections are regularly made by college officials, it is customary to grade the houses on a point basis, either using a letter system as A, B, C, to indicate relative excellence, or the words, good, fair, poor, and so forth. The final reports are made to the dean of men and the dean of women, to the president of the college, or to the college health authority.

On the whole, the students do not seem to resent inspection, but to be either indifferent or fairly favorable to it. Twenty institutions report that the inspections are welcome, while only three say that their students feel resentful. The usual basis of resentment is that such inspection constitutes interference with the student's individual right to live in the way he pleases, and that the way ard up. Seven of the institutions report that the value of these most important criticisms made by the inspectors are that the houses are ill-adapted to study and to group life. The next most serious criticism is of the sanitary conditions under which the students choose to live. Institutions frequently reported that the students' rooms were unclean and disorderly, and that the toilet conditions were deplorable; that the sleeping quarters were crowded and unsuited to group life; that the fire hazard was very great; that the storage and preparation of food was insanitary; and that the basement conditions were bad. It will be seen that part of these criticisms refer to the type of building used, and part to the condition in which the buildings are kept. The first set of conditions might be quite expensive to remedy, but the second set could surely be cleared up.

Very few of the institutions seemed to avail themselves of the force of publicity through printed classification of houses, although this would probably be their most effective means of arousing group pride in excellence of rating. One institution reported that the dean of men wrote a letter to each chapter, stating the result of the college inspection, the rating of the house, commending excel-

lence where it was found, and calling attention to conditions that might be improved.

This institution reported that it had found these letters a most effective way of improving the general sanitary conditions of the houses. Here again, the land-grant institutions are collecting a mass of information which they are hiding under a bushel. It may well be that the fraternities and sororities would welcome cooperation from the college authorities in this regard and would gladly profit by it.

In all the institutions where fraternities are permitted, the reports state that quiet hours are maintained for study. The usual evening hours are from 7.30 p. m. on through the rest of the night, or from 7.30 on to 10 or 10.30 p. m. A few institutions reported that quiet hours began at 7 o'clock, and a few that they began as late as 8.

Since nearly all of the institutions that permit fraternities are coeducational, the problem of the fraternity and sorority houses side by side is a serious one. Eleven of the land-grant institutions reported that women students may go to men's fraternity houses for other than scheduled social events. Five of them qualified this by saying that women must be chaperoned. Thirty reported that women were not permitted to go to the men's fraternity houses at all outside of scheduled social events, but here again two say that this rule is frequently broken. Of the six who permit women in the houses at times other than regular social events, two require housemothers in the men's fraternity houses, and report that all of their fraternity houses have such an official. Four report the absence of housemothers in practically all of the men's houses.

In 31 of the institutions, there is no ban on either interfraternity or fraternity-sorority parties, and in a coeducational institution there would seem to be no reason why such a ban should exist. Several of the institutions stated that they did not forbid it, but that this practice was not customary on their campus.

In none of the land-grant institutions is there any attempt to regulate the expense of parties given by such organizations as the fraternities and sororities. While eight of the land-grant institutions report that there is a limit placed on fraternity and sorority expenses, in every case this statement is followed by the qualification that such limitation is made either by the fraternities themselves or by the Interfraternity Council or the Panhellenic Council. This is evidently regarded as out of the institution's province and a purely private matter of the group. Even when some officer of the institutions is given control of a college calendar, parties given by fraternities and sororities are not listed as a part of this social calendar, but are regarded purely as private enterprises. On the other hand, some of the institutions report that they limit the num-

ber of parties that any organization can give during any one semester or quarter.

These organizations are firmly intrenched. They represent an enormous monetary investment. They perform certain very valuable services for the college. They seem to answer certain needs of the undergraduate life. They have enormous possibilities for value to their members and to the college community. What then, should the college authorities do about them? The college authorities must work definitely with them. In this respect, the relation of the women's organizations to the college authorities would seem to be much closer than that of the men's organizations. If the colleges are to continue turning over to these private organizations the housing of a large body of their students, they should offer more cooperation and help to these groups of immature students, many of whom have never had any experience in managing a household or business enterprise. The college authorities have a real responsibility in helping the student groups to work out their problem in such a way as to make for positive values on the college campus. This can not be accomplished by a laissez-faire attitude, nor by letting the organizations have their own way until they meet with disaster, and then severely punishing them for the results of the administration's indifference. The answer is probably, not stricter regulation but closer cooperation, more real interest, more appreciation of values, and more assistance in avoiding difficulties and in planning constructive programs that will lead to positive values. Many of the severest criticisms leveled against fraternities attach practices that are in no way inherent in the fraternity system itself and that could be changed by taking more forethought.

Honorary Organizations

Two types of so-called honorary organizations are prevalent in all of the land-grant institutions. The first type, the departmental or scholastic honorary groups, has been treated in another section of the report. Their name is legion and their basis of membership varies, but one strain of uniformity runs through them—the attainment of certain specified scholastic rank for election to membership. In this group are Phi Beta Kappa, Sigma Xi, Tau Beta Pi, the Order of the Coif, Pi Lambda Theta, Lambda Alpha Xi, Alpha Omega Alpha, Omicron Nu, Mu Phi Epsilon, and a host of others. For each major division, and sometimes for divisions within such divisions, there is some honorary organization, the basis of selection being anything from rank in the upper twelfth of the graduating group of scholarship rating a few points above the scholastic average of the school

concerned. This group of honorary societies looks squarely at scholastic attainment as the major basis for election and regards student prominence in activities as almost negligible.

The students, on the other hand, feeling that their own activities give so much better measure of a man's real ability and likelihood to succeed after graduation than does mere scholarly success, have devised an almost parallel group of societies which they dignify by the name of "honor" societies. Very few of these are national in character, most of them having a merely local prominence and value. Most of them contain some such description of their objectives: "A senior fraternity of honor interested in the general welfare of the university"; "An organization of honor of junior men interested in the university and its activities"; "An organization of senior men chosen on merit for the good of the university." It will be seen that these statements are vague, and that their interpretation leaves them capable of being, in St. Paul's words, "all things to all men." Election to most of these organizations rests on a student's prominence in activities, his ability to gain distinction by political means, and his ability to keep his name before the public on the campus. The programs of most of these organizations are as vague as their statement of purpose, and many a college administrator would admit that the title "honorary" in their statement is a misnomer, indeed. Where more than one such organization exists on a campus for the same year, namely, rival senior organizations, the competition between the two usually results in seeking positions of prominence in campus activities.

One senior women's organization is national in its scope and has chapters on many of the land-grant campuses. This is the fraternity of Mortar Board, election to which comes at the close of a student's junior year. Though Mortar Board as a national sorority for senior women was founded as late as 1918, this does not really represent the actual age of this institution on many of the land-grant campuses as Mortar Board has taken into its membership as chapters many local senior honorary organizations which had existed long before 1918. Several of them go back as far as the year 1900, and have had continuous existence as self-perpetuating organizations. In practically all cases, these women's organizations at first designed to bring the women into closer acquaintance in their senior year soon developed altruistic trends, and took for a part of their purpose direct service to their college. At the present time Mortar Board has for its basis of election "leadership, scholarship, and unselfish service." About two years ago Mortar Board in convention formulated a definite scholastic policy, putting the scholarship average of those women who were to be considered

for membership as three points higher than the most recently published campus average of the entire student body. This results in most cases in a scholarship requirement around C plus, or 1.5, in numerical figures. Surely this average would seem to be a reasonable hurdle for any woman who expected to give much of her time to activities outside of her academic interests, since this is the average that many colleges demand for graduation. Nevertheless, the experience of Mortar Board has been that on almost every campus some student extremely prominent in activities has been barred from its membership by the enforcing of this standard.

The whole question of activity honor societies needs more study, greater interest in its possibilities on the part of administrative officers, and a reorienting of student thinking about their aims, their achievements, and their potential values.

Student Government

About the beginning of the twentieth century a new phase of student life manifested itself on college campuses throughout the United States. The students began to organize into groups which should take over certain portions of the management of student life into their own hands, and proceed to regulate those activities.

The authority of these groups to assume governmental functions was acknowledged in every case as delegated. It came primarily from the faculty and regents, and it was a voluntary relinquishment by them to recognized and designated student groups of certain regulatory functions. It is interesting to see that this movement attained its greatest prominence and its most rapid growth among women students in segregated women's colleges and women students in coeducational universities. Some of the institutions of the Middle West, such as the universities of Michigan, Wisconsin, and Minnesota, were among the very earliest to develop forms of student government, and in each case the earliest manifestations were the formation of a group called "The Women's League." The early Women's League was organized with a twofold purpose, first, to help in securing better housing conditions for the women students and, second, to provide some sort of coherent social life for the women students. The regulation of the conduct of the women themselves came later and was not the most prominent reason for the formation of Women's Leagues. Student government in the segregated colleges of the east, however, had a different history. It arose within those colleges where the students were housed in dormitories owned and managed by the college itself, its purpose being to assume the responsibility for making and enforcing rules for student conduct within these college-owned residences.

The student governing bodies which operate for both men and women students in the coeducational colleges of the land-grant group partake more of the nature of leagues rather than of regulatory bodies. Nowhere, however, are the men's student governing groups nor the joint student government groups for both men and women nearly so strongly organized and clear in their purpose as the women's student government organizations, which have grown out of these earlier women's leagues. Even on the coeducational campuses where a joint student governing board exists, such as the all-college Student Council, the Women's Student Government Board also operates and controls certain of the living and social conditions, as well as the activities of women students. The two bodies exist side by side with comparatively little overlapping of function. Moreover, the women's student government associations now hold a national biennial council for a discussion of their joint problems with a regional conference meeting alternate biennial years.

The student-government organizations for men or those for both men and women usually concern themselves with the management of such functions as appointment of chairmen for the various recognized student activities, homecoming day and class scraps; setting of dates for all-university functions such as the military ball, the junior prom, the senior ball, the sophomore hop, similar social functions; the maintenance of some sort of social calendar with a fairly equitable division of desirable dates among the organizations and classes; the publication of student handbooks containing information deemed necessary for the incoming students, occasionally the maintenance of some sort of personnel service for incoming students; and occasionally also the maintenance of an honor system if there is such a system in operation in the college. Frequently this body maintains the point system and has some special officer from its own membership whose duty it is to enforce the regulation of the point system.

The student-government organizations for women have three distinct functions—legislative, executive, and judiciary—generally vested in an elected board with representation from the various classes. They seem always to have a printed constitution which has been accepted by the administrative officers of the institution. The main tenor of their work is altruistic. In most colleges the organizations do the main part of the work in assisting the incoming freshmen to become acquainted with the new college environment. The functioning of their "big sister" work is one of the finest examples of really unselfish, well-organized, and intelligent student enterprise to be found in any line of student activity. On all of the campuses studied they also were carrying out a definite social and welfare program for all the women of the institution.

An examination of the reports in the survey shows that the work of legislating for individual conduct, for checking up on the individual's observance of the rules passed, and for punishing those who failed to live up to the standards of conduct imposed, varies on the campuses of the individual institutions. On some there was evidently an elaborate machinery for this checking and punishment. On others there was what appeared to be a good paper organization, but in the reports of the discussion at the most recently held biennial convention showed

little real accomplishment. A few of them made practically no effort to do much checking up of this kind, putting their emphasis instead upon providing a constructive social program for their college community.

The financing of all of these student organizations is apparently a common problem. In a very few of them an automatic membership fee was collected by the institution and turned over to an authorized group for disbursement. This was rare, however. In most of them finances were obtained by various money-raising devices such as sales, dances, and entertainments of various kinds. It would seem that if the activities of the student-government organization are worthy of recognition by the institution, some means ought to be found whereby they can be financed without eternal drives which take so much energy away from the real object of the organization.

A study of the projects sponsored by these women's student government associations indicates that the work with the incoming freshman is probably the largest single project that these organizations have in common. Next comes the provision of some form of social life, such as mixers, dances where both men and women are welcome; social hours for the women only, for better acquaintance among the women themselves; an occasional all-university party, or all-college party, where the student government organization may unite with such other organizations on the campus as the Y. M. C. A. and Y. W. C. A.

The giving of scholarships to needy students was another project that came in fairly frequently, though here again it was evident that this depended largely on ability to raise funds. In one university where the fees were automatic for the women students and were collected by the university and turned over to the women's student government association, the organization gave as many as 18 scholarships of $100 annually. In another university, almost as large, where the fee was gained by membership solicitation, the addition of the sum of $78 to a loan fund open to freshman women was mentioned as an achievement worthy of note. The maintenance of restrooms for women in the various buildings on the campus, including the furnishing of them and keeping them in reasonable order and cleanliness, was another project mentioned in more than one women's student government report.

Frequently, the women's student government board publishes a code, a creed, or a statement of the aims and purposes of the women students. This is usually highly idealistic, but none the less admirable. In addition, the women's student government association has in practically all of the institutions studied and drawn up a set of rules to govern living conditions, which are usually supplementary to the regulations governing living conditions for the women students drawn up by the college authorities. They control such matters as the number of nights a week that a student may use for social purposes; the hours at which women students shall be in their rooms; the time at which women students are required to leave dances; absence from their houses for overnight and methods of obtaining permission for such absences; hours for callers at the houses; maintenance of quiet hours; and registration when leaving the house as to place and probable time of return.

It was interesting to observe in one of the land-grant institutions for men that there is a student government organization for the resi-

dence halls similar to that found in women's colleges. Its object is to regulate the conduct of the residents in the dormitories and to protect the college property. A fairly elaborate system of council government has been established with regulations as to quiet hours and care of rooms and furniture. It also apparently carried on all the types of activities that a regular judiciary committee of students, passing on each other's conduct, would be called upon to assume. The student government organization at this institution is supported by a blanket tax on all the students and the dormitory committee is a subcommittee of the governing body for all student activities. In the institutions for men with a military or semimilitary organization, student government seems to be at a minimum. This might be expected from the nature of the institutional organization. In practically all of the land-grant institutions where women form any considerable part of the student body, there is a separate women's self-government association variously named. The title most frequently used was the Women's Self-Government Association, but sometimes this body was called the Associated Women Students or, as in the old days, the Women's League. This was true even in the organizations on the west coast where the Associated Student Body controls the entire organization of extracurricular activities more completely than in any land-grant institutions. Curiously enough, this separation of the governing of the women students does not seem to preclude the presence of women on the all-student council in any case, although they are represented there in much smaller proportions than their actual numerical strength in the student body would seem to call for.

The question of student government bodies, of their functions, of their possibilities, of their actual practices, of the amount of power that they may safely assume, and of the amount of power that they are willing to assume, is one that demands much further study, and would be a fruitful source of research for any educational institution interested in vital collegiate issues. That this form of student activity as a laboratory for character development is in its merest infancy can not be doubted. These bodies have not by any means realized their full possibilities of development. Many times, too, at least as far as the women students are concerned, the emphasis on regulatory and judiciary procedure has dwarfed the larger constructive possibilities of organized self-government. Much more exhaustive data should be collected from which a comparative study of the usefulness and positive values of student self-government might be drawn.

Student Unions

With the realization that some definite provision for student association on the campus was needed, an organization known as the student union has been established in a number of the land-grant

institutions. As so often happens, the name has come to mean the building wherein the activities of the student union are housed fully as much as the organization for the activities itself. In 12 of the land-grant institutions are student unions with some sort of building set aside for the housing of student activities. There is now a national association of college and university unions holding an annual meeting. Its definition of the term "union" is as follows:

> The word "union" is herein defined as an organization in any college or university whose service it is to further and promote social activities, membership in such organization being open to all male students.

In spite of this restriction in the wording, however, membership is open to women students as well as men on several land-grant college campuses. Such unions as those on the campus of Iowa State College and at the University of Wisconsin are typical of this practice. The facilities of these two union buildings are open to the women students as well as to the men and are freely used by them. On a few of the other campuses certain of the facilities in the union building for men are available for the women students, if their own buildings are inadequate.

In nine of the land-grant institutions reporting student unions all male students are automatically members of the student union. A fee is collected through the financial authorities of the institution for their support. In three the membership is optional. The fee charged for membership in the union ranges from $2 to $9 a year, with the median at $3. The three institutions which do not have automatic membership report as high as 85 per cent of their male students join the union voluntarily.

In nearly every case the direction of the activities of the men's union is in the hands of a union board of governors, which is largely composed of students, though sometimes this board has alumni members and occasionally faculty members. It elects a manager who is a full-time official with a salary paid from the revenue from the building or from student fees. The activities carried on within its walls are sponsored by and directed by this manager and the board.

The whole student union movement is less than 20 years old and the greatest number of buildings have been erected within the past 8 years. It is quite evident that this movement, though so new, fills a real need in the social life of the institution. In the future little doubt exists that many more of the union buildings will be erected and many more activities housed in this dignified way with proper sponsoring and supervision. Certainly any institution which has once had a building of this kind, managed as well as most of these buildings are managed, would not deem it possible to get along without such an organization.

Chapter XII.—Social Calendar

The social calendar at the land-grant institutions and the concern of the administration itself with the regulation of the social life on the campus shows a wide variation. Six of the land-grant institutions report that they keep no calendar of social affairs, and that the students, therefore, make their own arrangement about fixing dates for such affairs. Thirty-nine of the institutions, however, report that such a calendar is set for all major social functions, and that the calendar is published with a certain amount of regularity. Twenty-five institutions state that it is published regularly, although the time of publication varies from weekly to quarterly. One institution reports that it is published only at the beginning of the school year. The chairman of the social committee seems to be the favorite person for this responsibility, as this official was named in 13 of the reports. The dean of women came next in frequency. She was listed in 11 reports. As the dean of women is frequently chairman of the social committee, it will be seen that her office handled this matter of the social calendar in a very large number of institutions. The dean of men was mentioned as the official to do this work in eight institutions; the registrar in three; the chairman of the calendar committee in two; the president in one; and the head of the student council in one. It was also quite evident from the reports that only major social affairs were listed on this calendar, and such private functions as fraternity and sorority parties were practically never listed on the official calendar.

The functions most frequently mentioned on the official calendar were such dances as the junior prom; the senior ball; the sophomore hop; the commencement ball; the opening reception, often sponsored by the president of the institution; the military ball; homecoming, and May-day dances. With the exception of the president's reception and an occasional all-student mixer or men's smoker, the functions listed were practically all dances. The data submitted on the cost of these functions were too fragmentary to permit of tabulation. For the most part, they appeared to be held in the campus buildings and to be under fairly strict control by the compus authorities, with definite closing hours and definite regulations including auditing of accounts.

In reply to the question, "Is the number of dances at the institution limited in any way," 36 of the institutions replied "Yes," while only 9 answered "No." The usual regulation seems to be that no organization can give more than two parties during a semester or a quarter. Where the number was more than two, there was a sharp distinction between formal and informal dances. This distinction obtained also in the regulation as to closing hours.

One institution reports that all dances, whether formal or informal, must close at 10, and another puts the limit at 10.30. Four require all dances to close at 11, 16 at 11.30, 28 at 12, 4 at 12.30, 15 at 1, 12 at 2, 1 at 2.30, 1 at 3, and 1 at 4.30.

The institutions reporting closing hours later than 1 specified in each instance that this regulation applied only to one or two large parties during the year, such as the junior ball or the senior prom, and that the closing hours for others was 1 or 1.30, even in the case of formal affairs given by private organizations. One university reported that there were no rules whatsoever either as to closing time or as to number of functions; that organizations might give all the parties they wished, and that these parties could last as late as the organizations cared to have them. This statement was qualified somewhat by the statement that the Women's Self-Government Association on the campus made some regulations as to the time that women students must be in their houses. This would seem to be a favorite device of colleges for enforcing regulations. In the case of the institution in question, it probably has comparatively little effect, since that particular institution is well known for the fact that the men import most of their partners for college dances, instead of taking them from the women students on the campus. Even at best, regulating the hour of closing by forcing the guests to leave at a definite time although the host wishes the party to continue, would seem but a round-about way of achieving a result the regulation of which is clearly in the hands of the institutional authorities.

One of the favorite devices for raising money on all campuses would seem to be the giving of dances for profit. Thirty of the institutions report that such dances are fairly common, while only 14 refuse permission. Twenty-nine of the 30 report such dances on the social calendar, and 34 require prior permission for holding a dance for profit whether on or off the campus. The groups giving such dances seem to be orchestras, social groups, women student government associations, social committees, various societies, fraternities, athletic and dramatic organizations, and even private individuals. The report was too indefinite to indicate the actual profit usually made by one of these dances, nor was there any indication to show that the institutions audited reports from the dances given for profit. All dances given for profit were required to have chap-

erons approved by the institution in 35 of the institutions reporting, while only 3 indicated that they paid no attention to this matter. Tea dances seemed to be far from popular in the institutions, since 33 reported that they were unfamiliar with this type of entertainment, and only 10 indicated that such dances were commonly held at their institutions.

With three exceptions all of the land-grant institutions reported that for all dances the students must secure approved chaperons. The official who approved the chaperons in most instances was the dean of women. She was reported as performing this duty in 29 of the institutions, though in 3 of these the dean of men shared the responsibility with her. In 5 others, the dean of men was the person who approved the chaperons. The chairman of the social committee performed this function in 7 of the institutions reporting; the registrar in 1, and the auditor in another, and the professor of floriculture in a third. His selection for this function would seem peculiarly symbolic. Two additional institutions reported that since only members of faculties could chaperon college affairs, there was no need for approval by any other official. Two institutions reported that they accepted students as chaperons occasionally, although one qualified the statement by saying that only graduate students who had proved themselves suitable were ever used for this office. Forty-two replied definitely in the negative. The chaperons make a formal written report in only 9 of the institutions, while in 35 they do not. A number of those included in the 35, however, indicated that written reports might be called for at various times as the occasion arose, and that oral reports were frequently called for. Here again the dean of women was the officer most frequently named as calling for these reports. Next in frequency was the chairman of the social committee.

The report on the requirement of chaperonage makes a brave showing, and probably there is some useful purpose still served by having such mature older people visibly present at student functions. When one remembers, however, the ease with which couples leave the dance hall, the handiness of the automobile and its powers not only for quick transportation but also of seclusion, one can not but wonder whether the chaperon is not more or less of a figurehead. Certainly if chaperons make no report to any college official, they can be of little use in checking up on conditions which need correction at student functions.

The report on problems arising from student conduct at dances, if it shows anything, shows that students are just about like the people outside of college who make up the population at large. Drinking was listed as one of the difficulties in 26 of the institutions

reporting. Extreme or improper dancing was listed as a problem in 6 and attendance at over-town cafes after dances was listed as a problem at 11. The attendance at public dances and the going to road houses after college dances was spoken of in a number of reports, as were the stag line, withdrawal from the hall to cars during dances, and auto riding after dances. Conduct both of alumni and of guests from the neighboring high schools was listed fairly frequently as a problem causing concern to the college officials. Dark or "moonlight" dances were mentioned by two or three reporting institutions, and discourtesy to chaperons seemed to be a fairly common complaint.

The method of handling most of these difficulties would seem here, again, to be that of requiring the women students to conform to regulations. No institution reported any rules to regulate the conduct of its men students, nor any requirement that they be in their quarters by a certain definite time. The Women's Student Government Association, the Panhellenic Council, and the Associated Students seemed to be the three bodies that most frequently handled cases of offenses at dances. The dean of men and the dean of women handled cases in several instances, and the faculty social committee in one or two. One institution reported with honesty what is probably a true picture of the situation everywhere else: "We handle what we get, but most of the cases never come to us." Another seems to govern guests at dances with a rigid hand: "All young ladies leave the hall at intermission only, and all are required to register on reentering the hall within 30 minutes after the end of the intermission."

Chapter XIII.—Student Welfare Organizations

The activities which benefit both the individual participants and the community include (1) class organizations, (2) music organizations, (3) dramatic organizations, (4) forensics, (5) publications, (6) religious organizations, (7) interracial organizations, and (8) political and civic organizations.

Class organizations seem to be decidedly on the wane, if one can judge from the meager mention of them in the report on the list of organizations on various campuses. They are a form of organization gradually fading from their former prominence and significance. Their present function would seem to be largely that of affording at least four more offices that may be held by four sets of students. A fairly careful study of several of the available annuals of the land-grant institutions showed almost no activity carried on by the class organizations, with the exception of perhaps one dance during the year. To be sure, the officers usually had their pictures in the annual, but there was comparatively little mention of class activities. In a few of the institutions separate class organizations are maintained for the women students as distinguished from the class organization for all the members of each year. This furnishes, too, an additional set of students the opportunity of office-holding, since the women's organizations have elective offices, and frequently their pictures are given prominence in the annuals also. The fact seems to be that with the amount of organization on nearly all of the campuses, the old democratic organization of the class is far less important in the students' minds than are those which bring together students of like interests or like social ambitions.

Music organizations, on the other hand, flourish on all the land-grant campuses, and are listed many times. In practically every case they seem to be under joint faculty and student control, and certain faculty members have a good deal of responsibility, both for the conduct of these organizations, and for any public appearance that the organizations may make. Here, again, however, the emphasis is changed. The glee club is another disappearing group. In its place we find such organizations as the orchestra, the band, and the chorus, all of them decidedly more ambitious in the programs given and in the talent that they call forth than was the old-time glee club. The annuals again reveal the really fine type of per-

formance which these musical organizations give on many of the campuses. Their programs would do credit to professional orchestras and singing organizations. The recognition of music as a proper field for academic endeavor is directly responsible for this change of emphasis, and the programs that these groups on land-grant campuses have presented in the past few years show a marked contrast to the light and popular type of singing called forth by the old college glee club. The signs of the times on the college campuses as regards these musical organizations are very bright indeed, and greater growth in this department may probably be looked for in the future.

The development in student dramatics is fully as marked as in student music. The dramatic organizations on all of the reporting institutions showed decided activity. Here again it was quite evident that the institution itself was taking an active hand in fostering the dramatic interests of the students, since joint faculty and student management was indicated in almost all cases. The striking exceptions were the west coast institutions where the Associated Students conduct practically all of the student enterprises, including those of music, dramatics, forensics, and publications. In at least four or five instances there was apparently no administrative control of the dramatic activities on those campuses. In the same institutions, however, a study of the yearbooks showed that the standard of dramatic performance was very high, and the type of play presented of serious dramatic worth. Though the Associated Students conducted the entire enterprise, this does not mean that there was no professional coaching or supervision, for in each of the colleges the Associated Students employed a professional coach, who might or might not be also a member of the faculty, to have charge of all dramatics.

One decidedly new trend in dramatics would seem to be the "little theater" movement. On several of the land-grant campuses the dramatic work was in the hands of a member of the faculty who conducted courses in stagecraft, play production, the mechanics of the stage, etc. Frequently in these cases the plays given by the students were all sponsored by a single organization, all inclusive in its nature. On other campuses there were a number of dramatic organizations working in more or less friendly rivalry, but all coached by the same department members. In studying the annuals where pictures of the casts and settings were nearly always given, one could not but be struck by the serious effort being put into these student productions. The plays are of a weight and literary value far removed from the older type of college performance. While the classics are fairly well represented, it is surprising to see the number of modern plays listed that call for really skilled productions, such

plays as The Emperor Jones, The Yellow Jacket, Ghosts, Everyman, He Who Gets Slapped, Outward Bound, Arms and the Man, all present problems in staging, lighting, costuming, and character delineations that call for serious study and real development on the part of those who take part in such productions. When contrasted with the older type of college dramatics, such as the Howells playlets or A Box of Monkeys, typical favorites of the old days, one can only commend the intelligence and ambition with which the modern college student has attacked the study of the drama.

One honorary dramatic organization seems to have chapters on a good many of the land-grant campuses. This is National Collegiate Players. "The National Collegiate Players is a national honorary dramatic fraternity organized for the purpose of stimulating amateur dramatics, including acting, stage design, playwriting, directing, and other fields of the theater. Its aim is to assist in raising the standards of American drama by encouraging college men and women to enter the professional field. Its members are chosen on the basis of dramatic work performed while students."[7] Election to membership in that organization is the highest honor that can come to a student who has put serious effort into dramatic work while an undergraduate.

Unfortunately, not enough data were given in the material furnished for the survey to determine how members of dramatic organizations are selected, nor how democratic the club may be in opening its doors. Whatever the situation in this regard, however, there can be no doubt that the dramatic organizations are making a real contribution to the cultural life of the college community in the type of play they are presenting and the type of production they are sponsoring. When it is remembered that many of the land-grant institutions are located in fairly small communities, it will be seen that these dramatic organizations are performing a real service to the community outside of the college, as well as to the campus itself, when they stage worth-while plays in a fine and artistic manner. A student who has taken part in such productions, or who has assisted in their management, has gained real personal enrichment. Moreover, he is going to be a more valuable member of any community to which he goes after graduation because of the increased confidence and knowledge with which he can take part in community enterprises.

Like dramatics, forensics seem ordinarily to be under joint student and faculty control, with a large part of the directing in the hands of designated faculty members, usually in the department of Eng-

[7] Statement in the *Gopher*, Minnesota University Yearbook.

lish. Several of the land-grant institutions, however, have separate departments of speech, and where this is the case the forensics are usually directed by members of this department. Since the students who are on the debating team of the institution represent it in much the same sense that the students on athletic teams represent it, the institution in practically every case where such teams are reported assumes a certain amount of jurisdiction over the relations that these teams maintain with other institutions. It is fairly common to find the various land-grant institutions members of regular debate conferences which hold a series of debates with each other. Quite often women are members of these intercollegiate debating teams, and frequently seem to make as good a showing as the men students in this field. A few of the land-grant institutions report separate women's teams debate with women's teams from other institutions, and maintain a regular schedule of exchange debates. Another common practice is to have two equally strong debating teams for a single institution, rather than one star team. One team will debate the negative of a proposition, while the other team debates the positive side of that same proposition with another institution. Possibly both teams are debating the same institution, one at home and the other in the adversary's territory on the same evening. While it would be hopeless for debate to attempt to claim as great student interest as football in athletics, still it is surprising to see the large number of students who turn out for debates and follow them with keen interest.

In addition to the debating carried on by regular teams and sponsored by the institution, in many of the land-grant colleges are student organizations whose foremost interest is forensics. There are a number of national forensic societies which are represented on these campuses, some of them for men, and some for women. In addition there are a number of local organizations. While the first form of organization, that of the school debate, is a joint student-and-faculty managed affair in practically all cases, the second form of organization is practically always in student hands though a faculty member may be elected as adviser to the individual group. It would seem as though forensics had inherited the old throne of the literary society. Especially where the two organizations exist side by side, the debating group, whether it call itself a forum or assume the more popular disguise of Greek letters, exhibits a vitality which is painfully absent from the meetings of the literary societies as such. Because of the frequent assumption of Greek letter designations by practically all of the organizations on the modern college campus, one would have to be thoroughly familiar with all the organizations in order to sort them out. Here again the study of

the yearbook of those schools which were available proved much more valuable than the rather meager material furnished by other data.

Publications were the most frequently mentioned of any of the forms of enterprise on all of the land-grant campuses. These would seem to furnish a field of constantly increasing student interest and activity. Thirty-eight of the land-grant institutions mention either publication boards or student publications in their reports. Doubtless some of the other institutions have some one or other publication represented on their campuses, even though they failed to list it. A few of the campuses have practically every form of publications known to student life. In order of frequency mentioned these are: First, an annual or yearbook put out by the students as representative of the school and its activities; second, a daily or weekly newspaper devoted to current student interests; third, some sort of periodical magazine, largely literary in tone; fourth, specific publications for individual colleges, such as the college of agriculture, the college of engineering, the college of education, and the like; fifth, a magazine devoted to alleged humor. It will be seen that this comprises a large number of publication enterprises to be managed by students whose time is already pretty completely filled with the assigned program of their studies.

In the report on control of publications, it was quite evident that the institutions themselves felt that they had a real and important stake in their conduct. Of the 38 institutions reporting them on their campuses, all but 9 stated that they were under joint student and faculty control. All listed them as distinctly helpful in their general contribution to the campus. No questions were included as to the method of make-up of the boards which run these publications, the method of selecting the students who should have direct charge of them, the division of faculty and student control, and the actual financial transactions involved. On a campus where there are anywhere from 9 to 16 publications, the amount of money involved is indeed a considerable sum. The yearbook alone usually costs between $4 and $5 to each subscriber in spite of the fact that in the majority of institutions it is largely financed by the advertisers. Getting out a daily paper is in itself no small financial responsibility, whether it be paid for by blanket tax of the student body, or by the advertising solicited for its pages, and the voluntary subscriptions of students, faculty, and townsmen. The training is extremely valuable which the handling of such considerable sums of money gives to a student when it is done judiciously, and in a business-like manner.

The yearbooks are the most pretentious of all the publication undertakings. A great transformation has taken place from the day of the small intimately written, rather sophomoric record of the class achievements, personal quips, florid poetry, and decidedly crude art work, to the sumptuously bound, magnificently illustrated, and endlessly bepictured present-day volume which is so weighty that it is a real burden to hold it and which proclaims aloud that it is the last word in the commercial-annual-makers' ideal of what a yearbook for a school should represent. In fact, in that last implication is the whole story. In the old days the yearbook was entirely the product of student life. To-day the yearbook, both as to form and content, has been practically taken out of their hands by the skilled commercial artists, printers, paper makers, and photographers who have decided how the students should express themselves, and who put before the student editors dummy productions which foreshadow what the year's representative books should be like. In addition these same publishers have engineered a wonderful annual contest with prizes awarded for those books which best embody their ideas of what a yearbook should be. Consequently no one should suppose for a moment that the annuals were representative either of student thought or of student labor. Whether they are better or worse for being so far removed from amateurishness is a moot question. The facts remain that they are the bought product of commercial designers of high ability, and that the school which can afford to hire the best of these publishers and their draftsmen puts out the best looking annual.

The standard size for these publications is 9 by 12, the paper is the heaviest and finest gloss stock, and the book is a pictorial record of the campus life from scenes around the Dear Old Main, through the portraits of the board, president, and deans, to the album of the individual senior pictures, and group after group of students as nearly uniform in size, costuming, and posing as can be accomplished. In addition to the photographic reproductions, there are frequently color inserts done by distinguished artists and reproduced by the latest processes with protective tissue leaves between. The reading matter has been reduced to a minimum, and this is perhaps the most unfortunate feature of these books, because the editors themselves are so familiar with the individual groups on their own campuses that they take for granted that the mere name attached under a picture of 10 or 12 students will be description enough. Because to-day every student seems to have a passion for acquiring as many memberships as possible in organizations bearing Greek-letter names; this lack of identification in the yearbooks forms a serious handicap to anyone who is trying to gain

information from them about the campus. It is impossible to determine whether the Greek letters represent a denominational church club, a debating society, a social fraternity, or the board of publications itself. The same complaint holds valid against the fantastic and symbolic names given to the literary, dramatic, musical, forensic, and other organizations which are listed with pictures of their members in the pages of the annuals. Sometimes the date of founding is given and occasionally a little legend tells the number of chapters elsewhere.

Always the list of members is printed in full underneath the picture, but even this is not particularly informative to the person unfamiliar with society names on that particular campus. Perhaps this assumption that everyone is familiar with what is familiar to the students who comprise the staff is the one acknowledgment that the work is being done, not by professionals but by amateurs.

Only one of the yearbooks contains no advertising material whatsoever, but is supported entirely by the subscriptions of its patrons on the campus. The amount of money represented in these editions is very great. Sumptuous is perhaps the word most often used in describing them. The covers are imitation leather, richly embossed many times with color as well as with gilt, and the whole impression is one of expense. The book alone must cost a small fortune, and if those from all the land-grant institutions were placed end to end in any one year they would probably form a considerable stretch of such paving so dear to the statistician. The yearbooks are frequently sent to the high schools of the State as a legitimate means of advertising. They would be a much more effective means were there more descriptive material and more actual record of accomplishment in the worth-while projects instead of quite so many group pictures. When they do contain descriptive writing, the literary quality is frequently not as high as the reproductive processes for the pictorial material. Whether the great similarity between the yearbooks from one end of the country to the other is mainly due to the imitativeness of the student mind or to the salesmanship of the commercial concerns interested in selling their products to student publishers may well be questioned. Nevertheless, with all their faults, these yearbooks do form valuable records of college activities on the various campuses, and are distinctly worth-while contributions to campus life.

The student paper has of late years been a battle ground for opposing factions. On the one side, the student paper is many times subsidized by the administration of the institution so that official information necessary for the student may be put into their hands through their own publications. Since the institution partially supports the paper, it frequently feels that it has a right to some voice in

its policy. On the other hand, there is a group of independent students that always feels that the paper is a student publication pure and simple, no matter where its funds may come from, and that it should voice student sentiment only. As a usual thing, in the latter case it voices the sentiments of the editorial group, never more than a dozen, and sometimes not more than two or three. One group wishes the paper to represent student interests first and foremost, and to become a medium for notices of meetings of groups, student affairs, and publicity for various student enterprises. On the other hand, there is the group which feels that a newspaper should be a newspaper first of all, and that it should give more space to events that do not strictly concern themselves with campus affairs. The same paper may in the course of three or four successive years reflect in turn each of these varying phases of student thinking.

On some of the land-grant campuses the student newspaper is supported by a portion of a blanket tax or assessment made against each student and collected through the bursar's office. On others, the student newspaper subsists entirely on the revenue it can obtain by subscriptions and by the sale of its space for advertising. The paper that has been forced to struggle for its subscribers as a usual thing devotes more space and more sympathetic treatment to student activities and notifications of various campus events than the paper that is subsidized. So far as representing itself as an organ of the administration goes, there is little apparent difference between the subsidized paper and that which is wholly subscription-supported.

The student newspaper is variously managed. Sometimes it is under the supervision of the department of journalism in institutions that have such a department. Sometimes it is under the supervision of a joint student and faculty board of publications. This form of organization is mentioned in at least eight of the land-grant institutions. Sometimes it is under the direction of a specified faculty member who may be appointed to that position by the president of the institution. Where its management takes this latter form, censorship may be extremely strict, or extremely lax. In one of the land-grant institutions, a faculty member thus appointed sits at the shoulder of the editor and censors all the material that goes into the paper. In another institution which has much the same form of management this censorship or direction is purely advisory, and the relation between the faculty member and the student board is extremely cordial.

The responsibility of writing, editing, and managing a student newspaper is very great and on the whole the performances of the students in this regard is excellent. Work in any division of these publications is excellent training for the student who is interested

in continuing such work after he leaves college. That this training is highly regarded by the employers of college graduates is shown repeatedly by the questions asked as to student participation in these activities.

Among the publications devoted to the interests of the various schools we find innumerable enterprises. The *Law Review*, the work of the students in the law school, illustrates very well the serious work done by students on this kind of publication. In the same field are the technical engineering publications which many of the schools sponsor. Several of the land-grant institutions mentioned agricultural publications of various kinds; several mentioned a publication devoted to the college of education. In all of these cases the publications were directed and supervised by faculty members so that the final output represented not the students' view alone, but that of the faculty of that division as well. Probably this contact between student and faculty members working on a joint enterprise is one of the most valuable afforded by the modern educational institution. It brings an intimacy and an interchange that is doubtless excellent for both. Neither the size of the edition nor the amount of money involved in any of these publications is as large as in the case of the yearbook or the newspaper. The publications of the professional colleges afford experience, nevertheless, which is not measured by material scales and which richly justifies the colleges in fostering them.

The fourth form of publications on many campuses is the periodical or magazine devoted to the publication of student literature. This, too, is nearly always a joint faculty-student enterprise with faculty advisers from the English department who keep in very close touch with the students editing the publications. These literary magazines devote themselves largely to essays, fiction, and original student poetry, much of it of very high grade.

The last group of publications is the so-called humor magazines. The pace set for these publications is epitomized in the commercial national magazine called "College Humor." It was impossible to tell from the reports of the land-grant institutions just how many publications of this kind exist since most of these publications have fanciful names that make them indistinguishable from other organizations. Their justification is more difficult than that of any of the other publications. The lines drawn between wit and salubrity, the endless harping on the two themes of wine and women, and the lack of standards of taste evident throughout their pages, make the wisdom of their continuance doubtful. Certainly they can not be justified as legitimate media of publicity for any self-respecting college community. They die hard, however, since the conservatism of col-

lege youth clings to traditional activities and their boards furnish coveted positions for student officeholders.

In addition to the regular board of student publications, and the staff of the various magazines, periodicals, yearbooks, and newspapers published by the students, another group of student organization has grown up around the publications. These are clubs and professional fraternities and sororities organized on the basis of interest in writing. They are entirely student-managed and though occasionally they have faculty advisers chosen by the students, for the most part these advisers have only a nominal connection with the organization. There is at least one honorary professional fraternity for men, and there are two for women. The honorary feature, however, is extremely slight, as the scholarship basis is put low enough so as to form but a nominal barrier for any reasonably interested student. In several of the land-grant institutions as well as in other colleges, the men's professional fraternity stages each year a "razz dinner" put on in imitation of the Gridiron affair given by newspaper men in Washington. One of the women's organizations, Theta Sigma Phi, has for a number of years held a similar function for women. Instead of its being a "razz dinner" primarily, it is a discussion dinner with campus problems selected for their timeliness as topics. One other national organization that draws to its membership from students interested in writing is known as Quill. This takes in both men and women, is national in its scope, and has chapters in many of the land-grant institutions. Its meetings are much more like the old literary societies, excepting that instead of debates the members produce their literary masterpieces and read them for criticism. This national organization and other local organizations of similar nature have proved extremely stimulating to students who feel the urge to write. Many times the material produced primarily for the meetings of these organizations later finds its way into the student publications. The student organizations connected with writing have developed an additional function which shows clearly that the students themselves feel that these organizations are a definite preparation for their work after graduation. A part of the work of the professional journalistic fraternities and sororities is to establish contact between the members just graduating and the alumni members who are already in the writing field, and to help the newly graduates find a place in which to work with a good chance of advancement.

For the student interested in writing, or interested in journalism (these two interests are not necessarily the same) the student publications afford a splendid try out, give good practical training, and a

real opportunity to learn some of the rules of the game under especially fortunate conditions.

On the whole, the student publications present a very encouraging picture of student enterprise under cooperative direction. They have the weaknesses inherent in publications produced by an undergraduate group which necessarily regards them as a side issue rather than the main interest. They have also the difficulties inherent in a fairly frequently changing personnel. The business aspects of the work for the most part reflect only credit on their managers, and in many cases their literary material would compare not at all unfavorably with that of the product of communities of equal size in the lay world. The students themselves are most appreciative of the training they receive in conducting this joint student enterprise.

Religious Organizations

On all the campuses of the land-grant institutions a group of college churches has sprung up. These represent practically all the sects and denominations that prevail in American communities. They very frequently draw their membership from students who are already affiliated with the particular sect or denomination at home, but they also extend a welcome and seek to widen their influence by drawing into their membership students who have not yet found a church home elsewhere. In another section of this portion of the survey it is shown that in many places the land-grant institutions cooperate heartily with these churches. In addition to the churches themselves with their student pastors and their fully organized religious life, certain groups recognized as campus organizations are in reality denominational or sectarian clubs. These are semisocial in character, although the basis of membership is religious affiliation. On the larger campuses will be found as many as 35 to 40 of these denominational clubs. On the smaller campuses, perhaps there may be only two or three. The reports from some campuses did not mention their presence at all, but a study of the yearbooks of the institutions showed some of them.

The largest and perhaps the most influential of these on many campuses is the Newman Club, an organization of Catholic students. This is open to both men and women, and is social-religious in its character. It provides a meeting place, and a pleasant opportunity for social intercourse for its members, and at the same time it fosters a religious program and discussion of religious problems in certain of its meetings. The fellowship idea, however, is the one most frequently stressed, and the club serves a very real end in bringing together students away from home who have like backgrounds and like religious beliefs.

The Menorah Society occupies the same position for the Jewish students that the Newman Club does for Catholic students. The membership also includes both men and women, and the aim is both social and religious

The multitude of protestant denominations is so great that probably some of them are not represented with this kind of student organization, but it is difficult to discover a denomination that is not represented. Perhaps the largest denominational group on the land-grant campuses is the Methodist group. The Methodist Church has two student organizations which are perhaps equally strong. One is a mixed group of young people, organized as a social-religious club on much the same lines as the two before mentioned. The other social organization is for women members only, and is called Kappa Phi. Its object is not only social and religious, but it is definitely designed to train its members for leadership in the communities to which they go after graduation, and to give them the opportunity of learning the techniques and organization of church activities in such communities. It calls itself a sorority, and it has taken Greek letters to designate its name. Similar conditions exists among the Presbyterians, the Lutherans, and the Congregationalists, each of which has not only its mixed organization with both men and women members, but also separate organizations for its women students. The scheme of training for leadership after graduation is confined wholly to the women's organizations. The assumption may be that men instinctively know how to exercise leadership, but that women must be trained.

On the other hand, it may simply be that the women themselves are more keenly conscious of the opportunities that they will have when they go out into the communities after graduation than are the men students. Frequently where several denominations are not especially strong in a community they will group together and form a single organization. Such a situation exists among the so-called liberal denominations; the Universalists and Unitarians. On some of the land-grant college campuses they are united into a group called the liberal discussion club.

The Episcopal denomination has not seen fit to follow the prevailing fashion of organizing itself under a Greek letter name. It still calls itself by the name of the church itself, and is usually designated as the Episcopal Unit. Its procedure is dignity and straightforwardness. The same practice is followed by the Christian Science Society, and by the Baptist organization. All of these religious organizations meet fairly frequently, some times as frequently as once a week; they put on programs for their members of varying degrees of elaborateness. They call for a good deal of a

student's time and interest, and in many cases they make an adequate return. Many students, however, find it very difficult to keep up their interest in their denominational group and at the same time take part in the activities of the all-inclusive religious organizations which play so large a part on many of the college campuses.

On practically all of the land-grant campuses, the report indicates strong branches of both the Y. M. C. A. and the Y. W. C. A. These are very broad in their inclusion of membership, and offer a varied opportunity for students interested in this type of work. In addition, they are usually directly on the campus rather than on its fringe. Thirty-six of the land-grant institutions report both Y. M. C. A. and Y. W. C. A., 6 others report organizations called by the name of the college, as "Cornell Christian Association." Four of these, however, report branches of the Y. W. C. A. in addition, showing that the women's organization keeps its affiliation with the national body, even though the men's organization may be independent. California reports no organizations recognized officially by the university, although it states that there are branches in Berkeley especially for the students. Utah reports that it recognizes no organizations of a religious nature.

The evolution of these two organizations in the past 10 or 15 years has been amazing. The narrowness of their original membership platform has been broadened to include almost any one who is interested in spiritual matters. This is especially true of the Y. W. C. A. which has let down the former evangelical bars to such an extent that on many campuses both Jewish and Catholic girls work wholeheartedly in its various activities. It is interesting to see on how many college campuses very practical and vital functions of the college itself are turned over to these organizations. For instance, in replying to the questions on student employment, several institutions reported that this work is sometimes handled by these organizations where there was no regular centralized employment bureau on the campus. The finding of rooms for students away from home is another function belonging primarily to the college which has been carried by these two organizations in many places. On several of the land-grant campuses, they are in a real sense the center of the social life for the students away from home, and to them credit must be given in many places for undertaking the work of helping the freshmen to adjust to the campus through putting him in touch with older students who would be helpful to him in the first days of his residence at college.

The report on the direct college support of these organizations was covered in another section of this portion of the survey. Both the Y. M. C. A. and the Y. W. C. A. maintain national headquarters

with a fairly large paid staff. In addition, the college branches frequently employ paid secretaries who are mature trained people with a real interest in helping the students develop along the lines of their spiritual interests as well as in their intellectual life. The really good Y. W. or Y. M. C. A. secretary can be a real force and asset to any college campus. The salaries paid are not an adequate measure of the fine quality of personnel obtained. Both the Y. M. and Y. W. C. A. perform another very real service for the students, and that is the contacts which they make for him with the community outside of the campus. They offer opportunities for those interested in social service and in establishing better industrial relations, to become really acquainted with the conditions in the community. They foster a large program of world fellowship and international mindedness, and they try to work closely with all the agencies within the college community in helping the student to adjust himself, not only to college life but to his thinking about his life after he leaves college.

The Cosmopolitan Club is another organization that appears in the reports of many of the land-grant institutions. This is a club composed about equally of American students and students from other lands. It presents a program of racial and international problems which is very stimulating to American students, and it endeavors to help the student from other lands to make contacts which will be richer and more valuable than he could make by himself. It always has an advisory board composed largely of faculty members who help the students plan the programs and activities. It is instrumental in aiding foreign students to find suitable living conditions and to have a more satisfying social life while they are in this country. It also aids in bringing to the campuses speakers from other countries and fosters discussion of present-day problems which involve international understanding and good will.

The number of political and civic clubs on the campuses did not seem to be very large. The one most frequently mentioned was the College League of Women Voters. Perhaps the students are so much more interested in their own collegiate political activities than in those of the outside world that they can not maintain permanent political clubs. However, at the time of any heated presidential campaign the formation and growth of these political clubs is phenomenal, and almost every college campus supports not only the clubs representative of the main political parties, but also student clubs which voice the protesting and irregular groups. These clubs, however, seem to maintain only a temporary interest while the actual campaign issue is heatedly before the general public and then their vitality vanishes. It is curious to see how completely divorced from con-

tact with the world of affairs the college student seems to be on any of the major issues of the day. In all other respects, he is a strongly socialized animal seeking herd strength. In his interest in political matters, excepting at the time of a major campaign, he is apparently purely individualistic, at least if the complete absence of reports of political organizations, permanent in character, on the land-grant college campuses is any basis of judgment. Since the League of Women Voters is nonpartisan and entirely educational in aim, it is perhaps not so strange to find that this organization maintains continued life from year to year.

PART VII.—STAFF

The earnings, training, experience, age, family responsibilities, type of work, rank, and scholarly affiliations of members of the staffs of colleges and universities are intimately related. The survey of land-grant institutions presented an opportunity to secure information in sufficient quantity to justify analysis of some of these relationships in greater detail than staff studies have usually undertaken. There are now 20,988 men and 5,321 women members of administrative and instructional staffs in the land-grant colleges and universities. More than 12,000 members of the staffs of these institutions cooperated by furnishing in usable form information requested by an extensive questionnaire.

Since limitations of time and space have made it impossible to analyze and present in this report all the information thus collected, the following list of items covered by this questionnaire may be of assistance to students who desire to pursue the subject further by personal investigation of the data on file in the United States Office of Education. The questionnaire secured information for each staff member concerning age, academic rank, title of position; college, school, or major division of service; department, sex, race, marital condition, birthplace, salary, perquisites, additional institutional earnings, noninstitutional employment; college, normal school, and university training upon both the undergraduate and graduate levels; major and minor subjects studied, work in professional education; earned and honorary degrees, degree equivalents; elementary and secondary school experience in teaching, supervisory and administrative work, and in various subject-matter fields; business and professional experience; college, normal school, and university experience with tenure, subject-matter field, level and nature of work in each such institution; age of attaining and length of service in each academic rank; teaching load; percentage of time employed by institution; distribution of time among different institutional duties; nature and number of publications; sabbatic and other leaves; membership in and attendance upon meetings of professional, scholastic, and scientific organizations; special honors attained.[1]

The statistical records of selected portions of the information secured by this questionnaire constitute the greater part of the report that follows. Comment has been restricted to the more obviously interesting and significant features of these records in order that a larger portion of the data themselves might be presented. It is believed that the statistical tables that follow will provide data for interpretation and study that have not usually been available to students and institutional administrators.

[1] For discussion of the staff from the standpoint of the major divisions see Parts IX, X, and XI, and Vol. II, Parts III and V.

Almost every staff problem is in some way related to the compensation paid staff members. The salaries paid members of the land-grant college staffs, therefore, present a convenient point of departure for presentation of the facts available with reference to rank, annual period of service, age, training, and other factors that are significant in evaluating the nature of the administrative and teaching forces in this group of institutions.

It is usually assumed that salary varies with rank and with the length of the period of annual service. Table 1 presents the facts with reference to these relationships for 51 of the land-grant institutions. This information is derived from the annual reports made by the land-grant institutions to the United States Office of Education.

TABLE 1.—*Salaries for 1928–29 in 51 land-grant colleges*[1]

Salaries paid for academic year ending June 30	Number of full-time staff									
	Deans		Professors		Associate professors		Assistant professors		Instructors	
	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.
1	2	3	4	5	6	7	8	9	10	11
Up to $1,499		18	11		4	1	8	3	118	73
$1,500–$1,749		1					44	4	301	77
$1,750–$1,999			1		1	1	9	30	645	122
$2,000–$2,249	1	4	4	4	9	4	126	60	805	212
$2,250–$2,499		2	4	3	19	25	209	91	279	117
$2,500–$2,749	1	4	52	23	83	78	421	192	195	73
$2,750–$2,999	1		14	16	80	106	181	97	43	37
$3,000–$3,249	4	4	78	82	193	141	350	174	27	45
$3,250–$3,499	2	1	82	69	149	58	96	85	9	4
$3,500–$3,749	1	10	235	186	176	88	84	71	7	8
$3,750–$3,999	1	9	131	158	83	42	19	10	2	2
$4,000–$4,249	5	34	322	245	41	64	27	23	1	1
$4,250–$4,499	5	7	146	54	18	17	9	8		1
$4,500–$4,749	4	20	203	151	18	13	14	7	1	
$4,750–$4,999	5	17	61	51	3	6	3			
$5,000–$5,249	24	37	207	149	6	12	6	3		
$5,250–$5,499	4	4	23	4	2	1		1		
$5,500–$5,749	6	13	83	44		1	2	1		
$5,750–$5,999	1	4	10	6		1		1		
$6,000–$6,249	7	30	98	54	1	4	3			
$6,250–$6,499	1	1	2	1						
$6,500–$6,749	1	18	32	31	1					
$6.750–$6,999			1				1			
$7,000–$7,249	1	12	36	31		1				
$7,250–$7,499		3			1		1			
$7,500–$7,749	13	5	16	20						
$7,750–$7,999		1	1							
$8,000–$8,249	2	5	12	10						
$8,250–$8,499										
$8,500–$8,749	2	8		1						
$8,750–$8,999		1								
$9,000 and over	5	10	9	4						
Total number of cases	97	283	1,847	1,397	888	664	1,633	861	2,433	772
Median	5,193	5,071	4,278	4,161	3,342	3,207	2,738	2,880	2,005	2,134

[1] Massachusetts Institute of Technology is omitted.

One striking fact brought out by this table is the curious condition that exists with reference to the salaries of deans, professors, and associate professors, who serve upon the basis of 12 months annually. The median salary for these staff members is less than the median for staff members of similar academic rank who serve upon the nine months' basis.

In order to determine whether the levels of salaries for the different ranks vary as between the different geographical regions and to discover the relationship of salaries upon the 9 and 12 months' bases in the same areas, Tables 2 to 6 were prepared from the basic data from which Table 1 was derived.

TABLE 2.—*Salaries for North Atlantic Division*[1]

Salaries paid for academic year ended June 30	Number of full-time staff									
	Deans		Professors		Associate professors		Assistant professors		Instructors	
	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.
1	2	3	4	5	6	7	8	9	10	11
Up to $1,499		1						2	36	35
$1,500–$1,749								1	95	11
$1,750–$1,999							2	3	100	25
$2,000–$2,249		1	1	2			35	10	127	26
$2,250–$2,499				2	2	1	40	9	53	23
$2,500–$2,749			2	7	18	2	79	35	30	19
$2,750–$2,999			2		22	7	39	11	7	6
$3,000–$3,249		2	9	8	22	11	101	23	3	20
$3,250–$3,499			16	22	7	14	34	13	3	1
$3,500–$3,749		3	69	51	12	10	26	11		1
$3,750–$3,999		1	64	51	3	4	7	1		
$4,000–$4,249	1	8	73	73	6	3	7	2	1	
$4,250–$4,499		2	27	21	1		3			
$4,500–$4,749		2	41	33			2			
$4,750–$4,999	1	4	12	13						
$5,000–$5,249	3	6	58	57	1		5			
$5,250–$5,499			1	1						
$5,500–$5,749			9	11			1			
$5,750–$5,999			1							
$6,000–$6,249	2		15	15			1			
$6,250–$6,499										
$6,500–$6,749		3	3	4						
$6,750–$6,999										
$7,000–$7,249	1	5	15	15						
$7,250–$7,499										
$7,500–$7,749	2		3	4			1			
$7,750–$7,999		1								
$8,000–$8,249	1		5	5						
$8,250–$8,499										
$8,500–$8,749	2									
$8,750–$8,999										
$9,000 and over	3	2	4	4						
Total number of cases	16	41	420	399	94	52	383	121	455	167
Median	7,500	4,781	4,195	4,193	3,057	3,339	2,978	2,761	1,991	2,120

[1] North Alantic Division: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania.

TABLE 3.—*Salaries for North Central Division*[1]

Salaries paid for academic year ended June 30	Number of full-time staff									
	Deans		Professors		Associate professors		Assistant professors		Instructors	
	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.
1	2	3	4	5	6	7	8	9	10	11
Up to $1,499			1				4	1	32	13
$1,500–$1,749							1	2	114	32
$1,750–$1,999					1	1	12		289	54
$2,000–$2,249			1	2	8	2	54	21	403	87
$2,250–$2,499			2		9	1	64	22	126	45
$2,500–$2,749		1	13	5	28	5	151	71	114	37
$2,750–$2,999	1		7	3	14	9	93	46	25	28
$3,000–$3,249			27	11	75	60	137	106	17	21
$3,250–$3,499	1		14	10	62	30	36	44	2	2
$3,500–$3,749	1	1	28	48	75	50	46	54	6	7
$3,750–$3,999	1	6	17	29	51	32	10	7	2	
$4,000–$4,249	1	5	91	100	31	41	18	12		1
$4,250–$4,499		1	43	20	17	6	6	4		1
$4,500–$4,749		5	102	60	17	10	12	7		
$4,750–$4,999		1	39	21	3	4	3			
$5,000–$5,249	3	9	113	68	5	9	1	1		
$5,250–$5,499	1	1	22	2	2	1		1		
$5,500–$5,749	3	8	54	19		1	1	1		
$5,750–$5,999		2	8	4		1		1		
$6,000–$6,249	3	9	62	36	1	4	2			
$6,250–$6,499			2	1						
$6,500–$6,749	1	13	22	21	1					
$6,750–$6,999			1				1			
$7,000–$7,249		6	8	14		1				
$7,250–$7,499		1								
$7,500–$7,749	11	3	6	14	1					
$7,750–$7,999			1							
$8,000–$8,249	1	5	2	4						
$8,250–$8,499										
$8,500–$8,749		8		1						
$8,750–$8,999		1								
$9,000 and over	2	8	1							
Total number of cases	30	94	687	493	401	268	652	401	1,130	328
Median	6,500	6,194	4,744	4,577	3,512	3,630	2,858	3,088	2,081	2,187

[1] North Central Division: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

TABLE 4.—*Salaries for South Atlantic Division*[1]

Salaries paid for academic year ended June 30	Number of full-time staff									
	Deans		Professors		Associate professors		Assistant professors		Instructors	
	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.	9 mos	12 mos.
1	2	3	4	5	6	7	8	9	10	11
Up to $1,499			9		4		3		26	19
$1,500–$1,749								1	26	7
$1,750–$1,999			1				1	9	72	9
$2,000–$2,249			1			1	25	10	109	19
$2,250–$2,499		2				12	26	8	25	6
$2,500–$2,749			1	6	6	31	41	11	7	
$2,750–$2,999			1	6	20	27	12	5		1
$3,000–$3,249	1	1	7	22	38	21	2	8	1	
$3,250–$3,499		1	5	3	22	5		3		
$3,500–$3,749		5	49	13	13	5	1	1		
$3,750–$3,999		2	12	6	1					1
$4,000–$4,249	1		60	23	1	1	1			
$4,250–$4,499		1	52	1						
$4,500–$4,749		5	17	15						
$4,750–$4,999	1	4	2	1						
$5,000–$5,249	8	1	3	2						
$5,250–$5,499		2								
$5,500–$5,749	2	2		1						
$5,750–$5,999			1	2						
$6,000–$6,249	2	7								
$6,250–$6,499										
$6,500–$6,749		1								
$6,750–$6,999										
$7,000–$7,249										
$7,250–$7,499										
$7,500 and over		2								
Total number of cases	15	36	221	101	105	103	112	56	266	62
Median	5,141	4,813	4,102	3,750	3,148	2,819	2,506	2,500	2,021	1,889

[1] South Atlantic Division: Maryland, Virginia, West Virginia, North Carolina, South Carolina, Delaware, Georgia, Florida, and Porto Rico.

TABLE 5.—*Salaries for South Central Division*[1]

Salaries paid for academic year ended June 30	Number of full-time staff									
	Deans		Professors		Associate professors		Assistant professors		Instructors	
	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.	9 mos	12 mos.
1	2	3	4	5	6	7	8	9	10	11
Up to $1,499							1		12	2
$1,500–$1,749							3		33	21
$1,750–$1,999							4	17	85	25
$2,000–$2,249			1		1		12	11	66	46
$2,250–$2,499			1		3	6	37	27	24	14
$2,500–$2,749	1	1	3	1	5	19	32	42	10	2
$2,750–$2,999			2	4	10	51	19	15	3	
$3,000–$3,249	2		15	28	33	25	13	8	2	2
$3,250–$3,499	1		25	11	12	5	9		1	1
$3,500–$3,749			52	31	18	8	3	1		
$3,750–$3,999			26	54	1		1			
$4,000–$4,249	1	8	44	31		1	1			
$4,250–$4,499	2	2	14	6						
$4,500–$4,749	4		5	5						
$4,750–$4,999	3	2								
$5,000–$5,249	9	8	2							
$5,250–$5,499	1									
$5,500–$5,749	1									
$5,750–$5,999	1	1								
$6,000–$6,249		10								
$6,250–$6,499	1	1								
$6,500–$6,749		1		1						
$6,750–$6,999										
$7,000 and over		1		1						
Total number of cases	27	35	190	173	83	115	135	121	236	113
Median	4,958	5,141	3,731	3,803	3,170	2,909	2,582	2,533	1,965	2,046

[1] South Central Division: Kentucky, Tennessee, Alabama, Mississippi, Louisiana, Texas, Arkansas, and Oklahoma.

TABLE 6.—*Salaries for Western Division*[1]

Salaries paid for academic year ended June 30	Number of full-time staff									
	Deans		Professors		Associate professors		Assistant professors		Instructors	
	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.
1	2	3	4	5	6	7	8	9	10	11
Up to $1,499	-------	17	1	-------	-------	1	-------	-------	12	4
$1,500–$1,749	-------	1	-------	-------	-------	-------	-------	-------	33	6
$1,750–$1,999	-------	-------	-------	-------	-------	-------	5	1	99	9
$2,000–$2,249	1	3	-------	-------	-------	1	43	8	100	34
$2,250–$2,499	-------	-------	1	1	5	5	44	25	51	29
$2,500–$2,749	-------	2	6	4	26	21	118	33	34	15
$2,750–$2,999	-------	-------	2	3	14	12	18	20	8	2
$3,000–$3,249	1	1	20	13	25	24	97	29	4	2
$3,250–$3,499	-------	-------	22	23	46	4	17	25	3	-------
$3,500–$3,749	-------	1	37	43	58	15	8	4	1	-------
$3,750–$3,999	-------	-------	22	18	27	6	1	2	-------	1
$4,000–$4,249	1	13	54	18	3	18	-------	9	-------	-------
$4,250–$4,499	3	1	10	6	-------	11	-------	4	-------	-------
$4,500–$4,749	-------	8	38	38	1	3	-------	-------	1	-------
$4,750–$4,999	-------	6	8	16	-------	2	-------	-------	-------	-------
$5,000–$5,249	1	13	31	22	-------	3	-------	2	-------	-------
$5,250–$5,499	2	1	-------	1	-------	-------	-------	-------	-------	-------
$5,500–$5,749	-------	3	20	13	-------	-------	-------	-------	-------	-------
$5,750–$5,999	-------	1	-------	-------	-------	-------	-------	-------	-------	-------
$6,000–$6,249	-------	4	21	3	-------	-------	-------	-------	-------	-------
$6,250–$6,499	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
$6,500–$6,749	-------	-------	7	5	-------	-------	-------	-------	-------	-------
$6,750–$6,999	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
$7,000–$7,249	-------	-------	13	1	-------	-------	-------	-------	-------	-------
$7,250–$7,499	-------	2	-------	-------	-------	-------	-------	-------	-------	-------
$7,500–$7,749	-------	-------	7	2	-------	-------	-------	-------	-------	-------
$7,750–$7,999	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
$8,000–$8,249	-------	-------	5	1	-------	-------	-------	-------	-------	-------
$8,250–$8,499	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
$8,500–$8,749	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
$8,750–$8,999	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
$9,000 and over	-------	-------	4	-------	-------	-------	-------	-------	-------	-------
Total number of cases	9	77	329	231	205	126	351	162	346	102
Median	4,375	4,375	4,248	4,146	3,427	3,240	2,677	2,925	2,073	2,235

[1] Western Division: Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Idaho, Washington, Oregon, and California. Also Alaska and Hawaii.

For convenience in making comparisons, Table 7, showing median salaries by geographical divisions, ranks, and annual periods of service, was prepared from the detailed information presented by Tables 1 to 6.

TABLE 7.—*Median salaries 1928–29* [1]

Division	Salaries of staff members									
	Deans		Professors		Associate professors		Assistant professors		Instructors	
	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.	9 mos.	12 mos.
1	2	3	4	5	6	7	8	9	10	11
North Atlantic	$7,500	$4,781	$4,195	$4,193	$3,057	$3,339	$2,978	$2,761	$1,991	$2,120
North Central	6,500	6,194	4,744	4,577	3,512	3,630	2,858	3,088	2,081	2,187
South Atlantic	5,141	4,813	4,102	3,750	3,148	2,819	2,506	2,500	2,021	1,889
South Central	4,958	5,141	3,731	3,803	3,170	2,909	2,582	2,533	1,965	2,046
Western	4,375	4,375	4,248	4,146	3,427	3,240	2,677	2,925	2,073	2,235
Median for entire United States	5,193	5,071	4,278	4,161	3,342	3,207	2,738	2,880	2,005	2,134
Q_1	4,703	4,131	3,765	3,705	3,034	2,884	2,491	2,535	1,823	1,838
Q_3	6,438	6,194	5,074	5,010	3,682	3,612	3,148	3,242	2,236	2,453

[1] Concerning teaching staff in 51 land-grant colleges and universities, Massachusetts Institute of Technology is omitted.

In addition to the regular salaries recorded by Tables 1 to 6, some staff members receive perquisites and for special service, such as that in summer school or for extension work, are given extra pay by the institutions. Many supplement their institutional earnings by outside work for which pay is received. Table 8 shows for the United States and for each of the five geographical divisions the number and percentage of total staff reported that supplement their regular institutional salaries in these ways.

TABLE 8.—*Total number of cases with perquisites, additional earnings, and outside earnings, by major geographic divisions*

Major geographic division	Total number of cases	Perquisites		Additional earnings		Outside earnings	
		Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8
North Atlantic	2,079	87	4.18	483	23.23	458	22.02
North Central	4,883	247	5.05	990	20.27	831	17.01
South Atlantic	1,383	168	12.14	256	18.51	132	9.54
South Central	1,806	183	10.13	321	17.77	192	10.63
Western	1,881	122	6.48	328	17.43	280	14.88
Entire United States	12,032	807	6.77	2,378	19.76	1,893	15.73

Tables 9 to 14 show the range of these perquisites, additional insitutional and outside earnings for the United States and each geographical division, and Table 15 the median in each area and in the United States for the three methods of supplementing regular salaries.

TABLE 9.—*Total number of cases with perquisites, additional earnings, and outside earnings*

WHOLE UNITED STATES

Range	Perquisites	Additional earnings	Outside earnings
Up to $299	164	607	605
$300–$599	334	1,133	637
$600–$899	156	451	195
$900–$1,199	74	65	154
$1,200 and over	79	122	302
Total	807	2,378	1,893
No data	11,225	9,654	10,139

NORTH ATLANTIC DIVISION [1]

Up to $299	24	88	143
$300–$599	31	236	139
$600–$899	9	102	48
$900–$1,199	17	22	55
$1,200 and over	6	35	73
Total	87	483	458
No data	1,992	1,596	1,621

NORTH CENTRAL DIVISION [2]

Up to $299	57	264	280
$300–$599	68	484	287
$600–$899	71	174	78
$900–$1,199	21	20	47
$1,200 and over	30	48	139
Total	247	990	831
No data	4,636	3,893	4,052

SOUTH ATLANTIC DIVISION [3]

Up to $299	35	69	36
$300–$599	89	127	48
$600–$899	27	49	12
$900–$1,199	13	5	15
$1,200 and over	4	6	21
Total	168	256	132
No data	1,215	1,127	1,251

SOUTH CENTRAL DIVISION [4]

Up to $299	27	91	60
$300–$599	96	154	58
$600–$899	29	60	27
$900–$1,199	10	7	18
$1,200 and over	21	9	29
Total	183	321	192
No data	1,623	1,485	1,614

[1] North Atlantic Division: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania.

[2] North Central Division: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

[3] South Atlantic Division: Maryland, Virginia, West Virginia, North Carolina, South Carolina, Delaware, Georgia, Florida, and Porto Rico.

[4] South Central Division: Kentucky, Tennessee, Alabama, Mississippi, Louisiana, Texas, Arkansas, and Oklahoma.

TABLE 9.—*Total number of cases with perquisites, additional earnings, and outside earnings*—Continued

WESTERN DIVISION [5]

Range	Perquisites	Additional earnings	Outside earnings
Up to $299	21	95	86
$300–$599	50	132	105
$600–$899	20	66	30
$900–$1,199	13	11	19
$1,200 and over	18	24	40
Total	122	328	280
No data	1,759	1,553	1,601

[5] Western Division: Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Idaho, Washington, Oregon, and California. Also Alaska and Hawaii.

TABLE 10.—*Median amount of perquisites, additional earnings, and outside earnings by major geographic divisions*

Major geographic division	Perquisites	Additional earnings	Outside earnings
North Atlantic	$489	$495	$485
North Central	589	586	442
South Atlantic	465	439	487
South Central	501	435	486
Western	540	457	443
Entire United States	515	454	461

Tables 11, 12, and 13 show perquisites, additional institutional earnings, and outside earnings in relation to the salaries of staff members who receive such supplements to their regular salaries.

TABLE 11.—*Perquisites of staff members according to salaries*

Salary	Total number cases	Perquisites					
		No data	$299 and less	$300 to $599	$600 to $899	$900 to $1,199	$1,200 and over
1	2	3	4	5	6	7	8
No data	149	144	1	1	1	1	1
$1,999 and less	2,202	2,056	47	58	21	9	11
$2,000–$2,999	4,341	3,975	69	157	75	30	35
$3,000–$3,999	3,257	3,081	35	66	46	12	17
$4,000–$4,999	1,323	1,265	9	32	5	6	6
$5,000–$5,999	463	441	3	10	5	1	3
$6,000–$6,499	117	109	0	4	1	2	1
$6,500–$6,999	39	35	0	2	1	1	0
$7,000–$7,999	96	87	0	3	1	2	3
$8,000–$9,999	30	24	0	1	0	2	3
$10,000–$12,499	10	8	0	0	0	2	0
$12,500–$14,999	1	0	0	0	0	0	1
$15,000 and over	4	0	0	0	0	1	3
Total	12,032	11,225	164	334	156	89	84

TABLE 12.—*Additional institutional earnings of staff according to salaries*

Yearly salary	Total number of cases	Additional earnings					
		No data	$299 and less	$300 to $599	$600 to $899	$900 to $1,199	$1,200 and over
1	2	3	4	5	6	7	8
No data	149	141	1	4	1	0	2
$1,999 and less	2,202	1,852	162	133	23	5	27
$2,000–$2,999	4,341	3,589	260	390	61	8	33
$3,000–$3,999	3,257	2,498	135	412	164	18	30
$4,000–$4,999	1,323	982	35	155	116	19	16
$5,000–$5,999	463	345	11	27	58	9	13
$6,000–$6,499	117	93	0	5	14	3	2
$6,500–$6,999	39	35	1	0	2	1	0
$7,000–$7,999	96	80	2	5	9	0	0
$8,000–$9,999	30	25	1	1	2	1	0
$10,000–$12,499	10	9	0	0	1	0	0
$12,500–$14,999	1	1	0	0	0	0	0
$15,000 and over	4	4	0	0	0	0	0
Total	12,032	9,654	608	1,132	451	64	123

TABLE 13.—*Outside earnings of staff members according to salaries*

Salary	Total number of cases	Outside earnings								
		No data	$299 and less	$300 to $599	$600 to $899	$900 to $1,199	$1,200 to $1,799	$1,800 to $2,399	$2,400 to $4,999	$5,000 and over
1	2	3	4	5	6	7	8	9	10	11
No data	149	134	1	1	0	2	2	1	5	3
$1,999 and less	2,202	1,833	86	142	18	18	25	19	37	24
$2,000–$2,999	4,341	3,846	157	195	64	33	17	7	20	2
$3,000–$3,999	3,257	2,782	172	148	68	44	16	13	10	4
$4,000–$4,999	1,323	1,001	134	85	22	34	22	10	8	7
$5,000–$5,999	463	352	29	36	14	9	6	5	10	2
$6,000–$6,499	117	68	15	15	2	5	2	1	4	5
$6,500–$6,999	39	28	4	2	2	2	1	0	0	0
$7,000–$7,999	96	63	5	10	4	3	2	1	6	2
$8,000–$9,999	30	24	1	2	0	2	1	0	0	0
$10,000–$12,499	10	6	1	0	0	1	0	0	2	0
$12,500–$14,999	1	0	0	0	1	0	0	0	0	0
$15,000 and over	4	3	0	1	0	0	0	0	0	0
Total	12,032	10,140	605	637	195	153	94	57	102	49

The assumption is sometimes made that salaries bear a definite relationship to the training of staff members as evidenced by the degrees that they hold. Table 19 shows the frequency with which various salaries are distributed among those whose highest degrees are the bachelor's, master's, and doctor's and among those who hold no degree.

TABLE 14.—*Highest degree received by staff members according to salaries*

Salary	Total number of cases	Highest degree received					
		No data	No degree	A. B., B. S.	M. A., M. S.	Ph. D., Sc. D.	Miscellaneous
1	2	3	4	5	6	7	8
No data	149	25	18	52	31	23	0
$1,999 and less	2,202	201	119	1,032	766	84	0
$2,000–$2,999	4,341	339	181	1,807	1,575	438	1
$3,000–$3,999	3,257	143	86	1,104	1,107	816	1
$4,000–$4,999	1,323	52	16	371	404	480	0
$5,000–$5,999	463	10	9	101	130	213	0
$6,000–$6,499	117	4	4	23	27	59	0
$6,500–$6,999	39	4	0	10	8	17	0
$7,000–$7,999	96	2	2	23	19	50	0
$8,000–$9,999	30	1	0	14	9	6	0
$10,000–$12,499	10	0	0	4	3	3	0
$12,500–$14,999	1	0	0	0	1	0	0
$15,000 and over	4	0	0	1	3	0	0
Total	12,032	781	435	4,542	4,083	2,189	2

Inasmuch as staff members have in many cases pursued study without satisfying the conditions that lead to degrees, Table 15 was prepared in order to show the relationship of salaries to years of training above high school without reference to whether such training did or did not lead to a degree. This table should be studied in connection with Table 14.

TABLE 15.—*Relationship of salaries to years training above high school*

Years training above high school	Total number of cases	Yearly salary												
		No reply	$1,999 and less	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $5,999	$6,000 to $6,499	$6,500 to $6,999	$7,000 to $7,999	$8,000 to $9,999	$10,000 to $12,499	$12,500 to $14,999	$15,000 and over
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No reply	622	25	172	253	118	38	10	2	3	1	0	0	0	0
None	21	0	7	5	5	1	1	1	1	0	0	0	0	0
1 to 4 years	3,298	58	647	1,344	848	273	69	22	5	20	10	1	0	1
5 to 6 years	4,091	32	881	1,586	1,000	384	138	27	11	16	10	4	1	1
7 years and above	4,000	34	495	1,153	1,286	627	245	65	19	59	10	5	0	2

Since there has been considerable discussion recently in regard to the money value of higher education and of academic degrees in employments other than those of teaching and research, Table 16 was prepared to show the relationship between degrees held by staff members and their outside, noninstitutional earnings. Although this table should be used with caution since many factors such as age, rank, institutional salaries, and the nature of the outside employment tend to render interpretation uncertain, it is at least interesting to note the apparent indication that of those who have outside

earnings, staff members with the lower degrees frequently earn larger amounts than is the case of those who hold the higher degrees.

TABLE 16.—*Highest degree of staff members with relation to outside earnings*

Outside earnings	Total number of cases	Highest degree received					
		No reply	No degree	A. B., B. S.	M. A., M. S.	Ph. D., Sc. D.	Miscellaneous degrees
1	2	3	4	5	6	7	8
No reply	10,134	676	384	3,831	3,446	1,795	2
$299 and less	611	25	11	203	222	150	0
$300–$599	637	32	13	270	206	116	0
$600–$899	195	8	4	72	78	33	0
$900–$1,199	153	7	3	55	49	39	0
$1,200–$1,799	94	6	3	36	28	21	0
$1,800–$2,399	53	5	6	19	13	10	0
$2,400–$4,999	106	10	9	40	29	18	0
$5,000 and over	49	12	2	17	11	7	0
Total	12,032	781	435	4,543	4,082	2,189	2

The relationships that salaries bear to the type of work done by staff members, undergraduate instruction, graduate work, research, administration, extension, creative work other than research, and maintenance of public contacts are presented by Tables 21 to 27.

Attention is called to the fact that the largest groups of staff members who devote from 80 per cent to 100 per cent of their time to any type of work other than administration and public contacts are found in each case in the $2,000 to $2,999 range of salaries, while the largest number spending from 80 per cent to 100 per cent of their time upon administrative work is found in the salary range from $3,000 to $3,999. Tables 17 to 23 will repay careful, detailed study and analysis.

TABLE 17.—*Percentage of time staff members devote to undergraduates with reference to salary range*

Salary	Total number of cases	Percentage of time devoted to undergraduates						
		No data	No time	19 per cent or less	20 to 39 per cent	40 to 59 per cent	60 to 79 per cent	80 to 100 per cent
1	2	3	4	5	6	7	8	9
No data	149	52	22	4	9	19	11	32
$1,999 and less	2,202	687	275	65	144	301	181	549
$2,000–$2,999	4,341	981	1,004	75	163	287	445	1,386
$3,000–$3,999	3,257	511	851	122	312	393	507	561
$4,000–$4,999	1,323	117	235	117	272	229	237	116
$5,000–$5,999	463	40	78	75	120	91	42	17
$6,000–$6,499	117	8	24	19	34	21	7	4
$6,500–$6,999	39	7	10	13	5	2	0	2
$7,000–$7,999	96	16	29	13	22	10	5	1
$8,000–$9,999	30	6	12	6	2	1	0	3
$10,000–$12,499	10	0	10	0	0	0	0	0
$12,500–$14,999	1	0	1	0	0	0	0	0
$15,000 and over	4	2	2	0	0	0	0	0
Total	12,032	2,427	2,553	509	1,083	1,354	1,435	2,671

TABLE 18.—*Percentage of time which staff members devote to graduates with reference to salary range*

Salary	Total number of cases	Percentage of time devoted to graduates						
		No data	No time	19 per cent or less	20 to 39 per cent	40 to 59 per cent	60 to 79 percent	80 to 100 per cent
1	2	3	4	5	6	7	8	9
No data	149	57	76	8	6	1	0	1
$1,999 or less	2, 202	885	1, 223	44	34	14	1	1
$2,000–$2,999	4, 341	1, 035	2, 826	311	125	27	8	9
$3,000–$3, 999	3, 257	536	1, 778	608	243	76	9	7
$4,000–$4, 999	1, 323	124	553	371	206	54	13	2
$5, 000–$5, 999	463	41	152	152	85	28	3	2
$6,000–$6,499	117	8	42	28	26	10	3	0
$6,500–$6, 999	39	7	13	9	8	2	0	0
$7,000–$7,999	96	16	34	17	23	5	1	0
$8,000–$9,999	30	8	15	6	1	0	0	0
$10,000–$12,499	10	0	8	1	1	0	0	0
$12,500–$14,999	1	0	1	0	0	0	0	0
$15,000 and over	4	2	2	0	0	0	0	0
Total	12, 032	2, 719	6, 723	1, 555	758	217	38	22

TABLE 19.—*Percentage of time which staff members devote to research with reference to salary range*

Salary	Total number of cases	Percentage of time devoted to research						
		No data	No time	19 per cent or less	20 to 39 per cent	40 to 59 per cent	60 to 79 per cent	80 to 100 per cent
1	2	3	4	5	6	7	8	9
No data	149	56	66	10	6	7	1	3
$1,999 or less	2, 202	803	851	126	156	145	34	87
$2,000–$2,999	4, 341	1, 031	2, 367	382	234	119	64	144
$3,000–$3,999	3, 257	540	1, 693	452	256	134	63	119
$4,000–$4,999	1, 323	129	625	292	157	63	33	24
$5,000–$5,999	463	41	186	109	83	28	9	7
$6,000–$6,499	117	8	50	29	22	5	2	1
$6,500–$6,999	39	7	16	6	5	4	0	1
$7,000–$7,999	96	15	40	13	18	8	1	1
$8,000–$9,999	30	8	16	4	2	0	0	0
$10,000–$12,499	10	0	9	1	0	0	0	0
$12,500–$14,999	1	0	1	0	0	0	0	0
$15,000 and over	4	2	2	0	0	0	0	0
Total	12, 032	2, 640	5, 922	1, 424	939	513	207	387

TABLE 20.—*Percentage of time which staff members devote to administrative work with reference to salary range*

Salary	Total number of cases	Percentage of time devoted to administrative work						
		No data	No time	19 per cent or less	20 to 39 per cent	40 to 59 per cent	60 to 79 per cent	80 to 100 per cent
1	2	3	4	5	6	7	8	9
No data	149	56	60	15	9	2	4	3
$1,999 or less	2,202	882	1,097	146	28	19	4	26
$2,000–$2,999	4,341	1,029	2,377	681	118	50	21	65
$3,000–$3,999	3,257	523	1,331	935	263	84	40	81
$4,000–$4,999	1,323	120	294	460	245	92	46	66
$5,000–$5,999	463	39	64	151	92	53	29	35
$6,000–$6,499	117	8	16	28	19	22	10	14
$6,500–$6,999	39	7	2	6	6	10	3	5
$7,000–$7,999	96	16	8	18	20	11	8	15
$8,000–$9,999	30	8	3	0	1	2	5	11
$10,000–$12,499	10	0	2	0	0	0	2	6
$12,500–$14,999	1	0	0	0	0	0	1	0
$15,000 and over	4	2	0	0	0	0	0	2
Total	12,032	2,690	5,254	2,440	801	345	173	329

TABLE 21.—*Percentage of time staff members devote to extension work with reference to salary range*

Salary	Total number of cases	Percentage of time devoted to extension						
		No data	No time	19 per cent or less	20 to 39 per cent	40 to 59 per cent	60 to 79 per cent	80 to 100 per cent
1	2	3	4	5	6	7	8	9
No data	149	57	74	6	1	1	0	10
$1,999 or less	2,202	892	1,141	68	19	8	3	71
$2,000–$2,999	4,341	1,033	2,267	302	46	23	23	647
$3,000–$3,999	3,257	539	1,624	444	79	41	30	500
$4,000–$4,999	1,323	128	772	257	54	19	13	80
$5,000–$5,999	463	42	307	84	13	7	1	9
$6,000–$6,499	117	8	92	13	3	0	0	1
$6,500–$6,999	39	7	22	7	1	1	0	1
$7,000–$7,999	96	16	71	5	0	1	0	3
$8,000–$9,999	30	8	19	1	1	0	0	1
$10,000–$12,499	10	0	8	0	2	0	0	0
$12,500–$14,999	1	0	1	0	0	0	0	0
$15,000 and over	4	2	2	0	0	0	0	0
Total	12,032	2,732	6,400	1,187	219	101	70	1,323

TABLE 22.—*Percentage of time staff members devote to creative work other than research with reference to salary range*

Salary	Total number of cases	Percentage of time devoted to creative work						
		No data	No time	19 per cent or less	20 to 39 per cent	40 to 59 per cent	60 to 79 per cent	80 to 100 per cent
1	2	3	4	5	6	7	8	9
No data	149	57	77	5	4	5	1	0
$1,999 or less	2,202	892	1,154	60	41	19	5	31
$2,000–$2,999	4,341	1,041	2,767	258	97	61	31	86
$3,000–$3,999	3,257	543	2,097	304	145	62	32	74
$4,000–$4,999	1,323	132	862	200	80	30	7	12
$5,000–$5,999	463	42	285	79	31	16	9	1
$6,000–$6,499	117	8	85	13	7	1	2	1
$6,500–$6,999	39	7	25	5	2	0	0	0
$7,000–$7,999	96	16	58	15	5	1	1	0
$8,000–$9,999	30	8	18	3	0	1	0	0
$10,000–$12,499	10	0	8	0	1	1	0	0
$12,500–$14,999	1	0	1	0	0	0	0	0
$15,000 and over	4	2	2	0	0	0	0	0
Total	12,032	2,748	7,439	942	413	197	88	205

TABLE 23.—*Percentage of time staff members devote to public contacts with reference to salary range*

Salary	Total number of cases	Percentage of time devoted to public contacts						
		No data	No time	19 per cent or less	20 to 39 per cent	40 to 59 per cent	60 to 79 per cent	80 to 100 per cent
1	2	3	4	5	6	7	8	9
No data	149	55	68	22	3	0	0	1
$1,999 or less	2,202	884	1,136	155	15	4	0	8
$2,000–$2,999	4,341	1,028	2,482	766	41	14	3	7
$3,000–$3,999	3,257	535	1,675	997	32	12	2	4
$4,000–$4,999	1,323	126	563	596	32	3	2	1
$5,000–$5,999	463	41	163	243	13	0	1	2
$6,000–$6,499	117	8	43	59	6	1	0	0
$6,500–$6,999	39	7	10	18	4	0	0	0
$7,000–$7,999	96	16	34	40	6	0	0	0
$8,000–$9,999	30	8	12	9	1	0	0	0
$10,000–$12,499	10	0	1	6	2	1	0	0
$12,500–$14,999	1	0	0	0	1	0	0	0
$15,000 and over	4	2	1	0	1	0	0	0
Total	12,032	2,710	6,188	2,911	157	35	8	23

Administrative officers sometimes state that salaries are adjusted somewhat in accordance with the family responsibilities of staff members. Tables 24 and 25 give the yearly salaries of staff members according to their sex and marital status and with reference to the number of their children.

TABLE 24.—*Yearly salary of staff members according to their sex and marital status*

Sex—marital status	Total number of cases	Yearly salary												
		No data	$1,999 and less	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $5,999	$6,000 to $6,499	$6,500 to $6,999	$7,000 to $7,999	$8,000 to $9,999	$10,000 to $12,499	$12,500 to $14,999	$15,000 and over
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Single male	1,876	26	767	715	272	57	25	7	0	4	2	1	0	0
Married male	7,771	102	723	2,450	2,618	1,192	412	108	38	87	26	10	1	4
Widower	29	1	0	11	9	7	1	0	0	0	0	0	0	0
Divorced male	119	2	4	26	44	22	13	2	1	4	1	0	0	0
Single female	1,889	15	574	981	272	37	10	0	0	0	0	0	0	0
Married female	230	3	95	105	18	6	2	0	0	0	1	0	0	0
Widow	20	0	5	11	4	0	0	0	0	0	0	0	0	0
Divorced female	98	0	34	41	20	2	0	0	0	0	1	0	0	0
Total	12,032	149	2,202	4,341	3,257	1,323	463	117	39	95	31	11	1	4

TABLE 25.—*Yearly salary of staff members with reference to number of children*

Number of children	Total number of cases	Yearly salary												
		No data	$1,999 and less	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $5,999	$6,000 to $6,499	$6,500 to $6,999	$7,000 to $7,999	$8,000 to $9,999	$10,000 to $12,499	$12,500 to $14,999	$15,000 and over
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No reply	297	5	98	125	49	13	3	2	0	0	2	0	0	0
No children	5,761	66	1,663	2,482	1,099	295	107	23	9	13	4	0	0	0
One	2,068	16	221	765	651	279	82	21	6	21	5	0	0	1
Two	2,032	33	125	541	774	350	128	33	9	23	10	5	0	1
Three	1,108	18	62	249	413	226	77	27	8	20	5	3	0	0
Four	485	7	20	105	177	106	44	4	3	12	4	2	1	0
Five or more	281	4	13	74	94	54	22	7	4	7	0	0	0	2
Total	12,032	149	2,202	4,341	3,257	1,323	463	117	39	96	30	10	1	4

The economic pressures that arise from marriage and family responsibilities are frequently supposed to force college and university faculty members to turn their energies to outside employment in order to supplement their institutional incomes. Women are usually supposed to have fewer opportunities to secure outside employment than men staff members. The facts in regard to annual outside

earnings of land-grant college staffs are presented by Tables 26 and 27 with reference to sex and marital status and with reference to number of children.

TABLE 26.—*Yearly outside earnings of staff members according to their sex and marital status*

Sex—marital status	Total number of cases	Outside earnings								
		No data	$299 and less	$300 to $599	$600 to $899	$900 to $1,199	$1,200 to $1,799	$1,800 to $2,399	$2,400 to $4,999	$5,000 and over
1	2	3	4	5	6	7	8	9	10	11
Single male	1,876	1,617	71	132	21	17	11	3	2	2
Married male	7,771	6,263	499	469	159	126	71	40	99	45
Widower	29	22	1	0	3	1	0	1	1	0
Divorced male	119	96	4	6	5	4	1	1	1	1
Single female	1,889	1,802	35	20	7	5	9	7	3	1
Married female	230	220	5	3	0	0	1	1	0	0
Widow	20	17	0	2	0	0	1	0	0	0
Divorced female	98	91	3	4	0	0	0	0	0	0
Total	12,032	10,128	618	636	195	153	94	53	106	49

TABLE 27.—*Yearly outside earnings of staff members with reference to number of children*

Number of children	Total number of cases	Outside earnings								
		No data	$299 and less	$300 to $599	$600 to $899	$900 to $1,199	$1,200 to $1,799	$1,800 to $2,399	$2,400 to $4,999	$5,000 and over
1	2	3	4	5	6	7	8	9	10	11
No reply	297	274	11	5	2	2	1	1	0	1
No children	5,761	5,104	189	264	72	42	36	12	31	11
One	2,068	1,695	106	142	47	25	13	10	19	11
Two	2,032	1,599	148	128	35	45	16	14	31	16
Three	1,108	871	88	56	23	21	18	10	17	4
Four	485	370	48	27	10	13	8	2	3	4
Five or more	281	227	15	15	6	5	2	4	5	2
Total	12,032	10,040	605	737	195	153	94	53	106	49

Although recent studies tend to show that there is close correlation between the salaries of institutional staff members and the quality and effectiveness of faculties, many considerations in addition to that of earnings attract men to service in educational institutions. Scholarly tastes, desire for intellectual freedom, belief in the value of education, the wish to be of service, interest in and liking for young people, and many other personal reasons may induce men and women to accept and remain in college and university positions that are relatively unattractive from the standpoint of money compensation. Especially is this likely to be true of men whose interests lead them to acquire the higher academic degrees.

Presentation of staff qualifications and interests solely with reference to salaries and other earnings may tend, therefore, to distort somewhat the emphasis that should be given to evaluation of institutional faculties. It is desirable to consider some of the elements of training and experience of staff members in the land-grant institutions without reference to the salaries that they receive. The following tables, therefore, are concerned solely with the presentation of facts concerning the training, experience, affiliations, activities, and academic advancement of staff members.

One interesting basis for study of the staffs of land-grant institutions is that afforded by the distribution of degrees in the five geographic areas and in the United States as a whole. These data are presented by Table 28. The western area shows a smaller percentage of staff members with no degree than any other region, while the South Central States have the largest proportion of staff members who have never obtained even the bachelor's degree. It will be noted also that the North Atlantic States have the smallest proportion whose highest degree is the bachelor's and the South Atlantic the largest percentage with this amount of formal education. The South Central and South Atlantic States also rank low with reference to the proportion of staff members who have doctor's degrees. Although averages and general practices afford very unsatisfactory standards of judgment it would seem that the South Central and South Atlantic land-grant institutions might well give considerable attention to raising the level of training for staff membership.

TABLE 28.—*Degrees earned by staff members, according to major geographic divisions*

Major geographic division	Total number of cases	Highest degree earned									
		No reply [1]		No degree		A. B., B. S., or corresponding baccalaureate degree		M. A., M. S., or corresponding master's degree		Ph. D. or Sc. D. or corresponding doctor's degree	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12
North Atlantic	2,079	109	5.24	64	3.08	706	33.96	714	34.34	486	23.38
North Central	4,883	230	4.71	151	3.09	1,834	37.56	1,777	36.39	891	18.25
South Atlantic	1,383	151	10.92	64	4.63	580	41.94	408	29.50	180	13.01
South Central	1,806	172	9.52	100	5.54	723	40.03	597	33.06	214	11.85
Western	1,881	121	6.41	56	2.98	700	37.21	586	31.15	418	22.22
Entire United States	12,032	783	6.51	435	3.62	4,543	37.76	4,082	33.93	2,189	18.19

[1] A few curious and unusual degrees are included in this classification.

The assertion is sometimes made that staff members have considerable training beyond that indicated by the highest degrees they hold. Table 29 was constructed to show the number of years training above high school that has been received by the land-grant college staffs in the five geographic areas and in the United States as a whole. It will be noted that upon this basis the South Atlantic and South Central States are high in the proportion of those who have not had more than four years of such training and low in the percentage that has seven years or more of training beyond the high school.

TABLE 29.—*Number of years training above high school by major geographic division*

Major geographic division	Total number of cases	Number years training above high school									
		No reply		No training above high school		1 to 4 years		5 to 6 years		7 years or more	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12
North Atlantic	2,079	125	6.01	0	------	557	26.79	613	29.48	784	37.71
North Central	4,883	184	3.76	14	0.28	1,190	24.37	1,783	36.51	1,712	35.06
South Atlantic	1,383	68	4.91	3	.21	464	33.55	456	32.97	392	28.34
South Central	1,806	143	7.91	3	.16	616	34.10	575	31.83	469	25.96
Western	1,881	102	5.42	1	.05	471	25.03	664	35.03	643	34.18
Entire United States	12,032	622	5.16	21	.17	3,298	27.41	4,091	34.00	4,000	33.24

Training of college faculty members in professional education subjects is being advocated very widely. In order to determine the extent of such training that the staffs of land-grant institutions have had, Table 30 was constructed upon the basis of individual questionnaire replies. It will be noted that the South Atlantic and the South Central States have the smallest proportion of staff members who have had no training in professional education subjects and that relatively large percentages have received 24 semester hours or more of instruction in this field. Apparently a considerable degree of dependence is being placed upon training in education by the land-grant institutions of these States. The question may be raised whether such training is regarded in some sense as a substitute for the usual academic degrees.

Table 31 shows for the entire United States the relationship of the number of semester hours of professional education to the highest degrees held by staff members.

TABLE 30.—*Training in professional education by major geographic divisions*

Major geographic division	Total number cases	Number semester hours of professional education subjects									
		No reply		No professional training		1 to 11 semester hours		12 to 23 semester hours		24 or more	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12
North Atlantic	2,079	1,135	54.59	250	12.03	285	13.70	197	9.48	212	10.20
North Central	4,883	2,183	44.70	592	12.12	636	13.03	789	16.16	683	13.99
South Atlantic	1,383	807	58.35	79	5.71	149	10.78	145	10.48	203	14.68
South Central	1,806	878	48.62	139	7.70	222	12.29	276	15.28	291	16.11
Western	1,881	865	45.99	208	11.06	242	12.86	277	14.73	289	15.36
Entire United States	12,032	5,868	48.77	1,268	10.54	1,534	12.75	1,684	14.00	1,678	13.94

TABLE 31.—*Highest degree of staff members with reference to semester hours of professional training in education*

Semester hours of professional training	Total number of cases	Highest degree received				
		No reply	No degree	A. B., B. S.	M. A., M. S.	Ph. D., Sc. D.
1	2	3	4	5	6	7
No reply	5,868	692	308	2,336	1,685	847
None	1,268	16	36	395	395	426
1 to 11	1,535	22	27	551	582	353
12 to 23	1,683	25	31	681	691	255
24 and more	1,678	28	33	580	729	308
Total	12,032	783	435	4,543	4,082	2,189

Inasmuch as teaching or administrative experience in the public schools usually presupposes some instruction in professional education subjects, it is interesting to note the relationship that such experience on the part of land-grant college staffs bears to semester hours of professional training. The data are presented in Tables 32 and 33.

TABLE 32.—*Secondary school teaching experience of staff members according to number of semester hours of professional training received*

Semester hours of professional training	Total number of cases	Number of years spent teaching in secondary schools			
		No reply	None	1 to 2 years	3 years or more
1	2	3	4	5	6
No reply	5,868	1,793	2,762	585	728
None	1,268	192	864	114	98
1 to 11	1,535	348	636	271	280
12 to 23	1,683	375	414	388	506
24 and more	1,678	377	224	343	734
Total	12,032	3,085	4,900	1,701	2,346

TABLE 33.—*Number of years spent by staff members in a principalship or superintendency with reference to professional training*

Semester hours of professional training	Total number of cases	Number of years spent in principalship or superintendency			
		No reply	None	1 to 2 years	3 years or more
1	2	3	4	5	6
No reply	5,868	2,641	2,767	215	245
None	1,268	348	868	30	22
1 to 11	1,535	723	637	100	75
12 to 23	1,683	969	417	168	129
24 and more	1,678	230	937	215	296
Total	12,032	4,911	5,626	728	767

In connection with the teaching experience of staff members it is interesting to note the regions in which teaching of agriculture in the public schools is most frequently an element of staff experience. Table 34 presents the data available. It will be noted that a larger proportion of the staff in the South Atlantic States has such experience than is the case in any other region.

TABLE 34.—*Years spent teaching agriculture in secondary schools by geographic location*

Major geographic division	Total number of cases	Years spent teaching agriculture in secondary schools							
		No reply		None		1 to 2 years		3 years or more	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10
North Atlantic	2,079	1,063	51.13	918	44.16	52	2.50	46	2.21
North Central	4,883	2,391	48.99	2,083	42.65	204	4.17	205	4.19
South Atlantic	1,383	669	48.37	546	39.47	90	6.53	78	5.63
South Central	1,806	669	37.04	969	53.66	95	5.26	73	4.04
Western	1,881	1,039	55.23	691	36.76	88	4.67	63	3.34
Entire United States	12,032	5,831	48.48	5,207	43.27	529	4.39	465	3.86

Another method of judging the interests and activities of university and college personnel is afforded by the records of their publications. Table 40 indicates for each geographic region the number and per cent of staff members who produced in 1928 research publications only, popular publications only, and those who produced both research and popular writings. Attention is called to the number that failed to furnish information in regard to publications. It appears probable that the large proportion of these omissions were due to the fact that staff members had no publications to report. In this connection it should be noted that the South Atlantic and South Central States show the largest percentage of failures to furnish

information and that they also show a small percentage reporting research publications and an even smaller percentage reporting both research and popular publications.

TABLE 35.—*Number and per cent of staff members who had publications during the year, with reference to geographic location*

Major geographic division	Total number of cases	Number who had publications during year									
		No reply		No publications		Research publications only		Popular publications only		Both research and popular publications	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10	11	12
North Atlantic	2,079	1,032	49.64	38	1.82	401	19.29	270	12.99	338	16.26
North Central	4,883	2,666	54.60	32	.66	905	18.53	589	12.06	691	14.15
South Atlantic	1,383	904	65.36	7	.51	155	11.21	173	12.51	144	10.41
South Central	1,806	1,225	67.83	15	.83	236	13.07	156	8.64	174	9.63
Western	1,881	1,025	54.49	4	.21	342	18.18	177	9.41	333	17.71
Entire United States	12,032	6,852	56.95	96	.80	2,039	16.95	1,365	11.34	1,680	13.96

Another distribution of the publications of staff members in the land-grant institutions is shown by Table 36, which indicates the number of staff members holding various degrees who have produced research publications only, popular publications only, or both research and popular publications.

TABLE 36.—*Number of staff members who had publications during the year with reference to highest degree received*

Highest degree received	Total number of cases	Number who had publications during year				
		No reply	No publications	Research publications only	Popular publications only	Both research and popular publications
1	2	3	4	5	6	7
No reply	781	680	8	27	41	25
No degree	435	372	3	14	35	11
A. B. or B. S	4,543	3,270	39	356	598	280
M. A. or M. S	4,082	2,135	33	742	552	620
Ph. D. or Sc. D	2,189	393	13	901	138	744
Miscellaneous	2	2	0	0	0	0
Total	12,032	6,852	96	2,040	1,364	1,680

Still another measure of staff participation in the intellectual activities of their craft is afforded by membership in and attendance at the meetings of professional and scientific organizations. Tables 37 and 38 present information in regard to these matters. It appears probable in the case of these data that failure to reply indicates for the most part lack of membership and failure to attend meetings.

This assumption is supported in part by the fact that the two regions showing the largest proportions of failure to reply show also the smallest percentages of memberships and the smallest proportion of attendance at meetings of professional and scientific organizations.

TABLE 37.—*Membership of staff in professional and scientific organizations by geographic location*

Major geographic division	Total number of cases	Membership in organizations							
		No reply		No membership in organizations		1 to 5 organizations		6 organizations or more	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10
North Atlantic	2,079	442	21.26	7	0.33	1,383	66.52	247	11.89
North Central	4,883	1,194	24.45	10	.20	3,046	62.37	633	12.98
South Atlantic	1,383	542	39.19	4	.28	713	51.55	124	8.98
South Central	1,806	680	37.65	9	.49	980	54.26	137	7.60
Western	1,881	488	25.96	1	.05	1,124	59.75	268	14.24
Entire United States	12,032	3,346	27.82	31	.25	7,246	60.22	1,409	11.71

TABLE 38.—*Attendance of staff at professional and scientific organization meetings by geographic location*

Major geographic division	Total number of cases	Attendance at organization meetings							
		No reply		No attendance		Meetings of 1 to 5 organizations attended		Meetings of 6 or more organizations attended	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10
North Atlantic	2,079	917	44.10	103	4.97	1,012	48.67	47	2.26
North Central	4,883	1,899	38.89	533	10.91	2,286	46.81	165	3.39
South Atlantic	1,383	768	55.52	79	5.73	503	36.37	33	2.38
South Central	1,806	986	54.59	186	10.29	603	33.38	31	1.74
Western	1,881	721	38.33	359	19.08	783	41.62	18	.97
Entire United States	12,032	5,291	43.98	1,260	10.47	5,187	43.11	294	2.44

Twenty or twenty-five years ago it was sometimes the custom for institutions to grant with considerable liberality honorary degrees to staff members who suffered from the academic handicap of not having earned graduate degrees. This practice has fallen into disrepute during the past generation, and honorary degrees may now be regarded as indicating the probability that those who receive them have rendered service of some distinction. It is interesting to note therefore, in Table 39, that a larger proportion of the staff members in the North Atlantic States hold honorary master's and doctor's degrees than in any other region. The obvious inference that the staffs of

land-grant institutions in the North Atlantic States contain a relatively large number of men of sufficient note to have won this form of recognition should not be accepted as conclusive. Private institutions continue to dominate the higher educational situation in this area and follow the practice of more liberal distribution of honorary degrees than is the case in regions in which public institutions set the fashion.

TABLE 39.—*Honorary degrees held by staff members according to geographic location*

Major geographic division	Total number of cases	Honorary degrees							
		No reply		No honorary degree		Honorary masters		Honorary doctors	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9	10
North Atlantic	2,079	306	14.72	1,700	81.77	19	.91	54	2.60
North Central	4,883	506	10.36	4,281	87.67	26	.53	70	1.44
South Atlantic	1,383	122	8.82	1,227	88.72	8	.58	26	1.88
South Central	1,806	182	10.08	1,602	88.70	9	.50	13	.72
Western	1,881	169	8.99	1,676	89.10	4	.21	32	1.70
Entire United States	12,032	1,285	10.68	10,486	87.15	66	.55	195	1.62

Of the 12,032 individual members of the staffs of the land-grant institutions who reported 9,898 stated that they were employed by the institutions full time; 197 from 75 per cent to 99 per cent of their time; 572 from 50 per cent to 74 per cent; 166 from 25 per cent to 49 per cent; and 85 less than 25 per cent. No statements were made concerning the percentage of their time devoted to institutional work by 1,114 staff members. However, examination of other evidence contained in these reports indicates that with relatively few exceptions practically all gave full time to institutional duties. The data with reference to per cent of time staff members are employed by the institutions are presented by Table 40.

TABLE 40.—*Per cent of time staff members are employed by institution by geographic divisions*

Major geographic division	Total number cases	No reply	Time employed				
			Full time	75 to 99 per cent	50 to 74 per cent	25 to 49 per cent	Less than 25 per cent
1	2	3	4	5	6	7	8
North Atlantic	2,079	90	1,854	35	78	9	13
North Central	4,883	363	3,885	75	387	131	42
South Atlantic	1,383	216	1,085	30	29	11	12
South Central	1,806	294	1,42[illegible]	23	31	5	8
Western	1,881	151	1,629	34	47	10	10
Entire United States	12,032	1,114	9,898	197	572	166	85

Use of the time of staff members in the conduct of the various activities of the land-grant institutions is shown by Table 41 for the entire United States and Tables 42 to 48 give the same data distributed by geographic areas for each type of activity. It will be noted that the South Central and South Atlantic institutions have relatively small percentages of staff members that do no undergraduate work and relatively high proportions of staff members that conduct no graduate work. More than half of the members of the staffs of the South Atlantic and the Western States report that they do no research. Probably this is also actually the case in the South Central States since a larger percentage of the staff members in these institutions than in any other region failed to furnish information on this point. Experience shows that a considerable proportion of omissions upon points of this kind may safely be interpreted as replies in the negative. Apparently greater relative emphasis is placed upon extension work in the South Atlantic and South Central institutions than in other regions since a smaller percentage of their staffs do no extension work than is the case in the other areas. This conclusion is corroborated by expenditures given by Part III of this survey dealing with business management and finance.

TABLE 41.—*Distribution of staff members' time*

Percentage of time	Devoted to—						
	Undergraduates	Graduates	Research	Creative work	Administrative work	Extension	Public contacts
1	2	3	4	5	6	7	8
No reply	2,428	2,717	2,640	2,748	2,690	2,732	2,710
No time	2,554	6,725	5,922	7,440	5,255	6,401	6,190
1 to 9 per cent	138	692	578	477	1,535	803	2,316
10 to 19 per cent	369	863	846	465	904	383	592
20 to 29 per cent	571	540	628	283	519	152	125
30 to 39 per cent	513	218	310	130	282	67	32
40 to 49 per cent	485	129	204	95	167	30	14
50 to 59 per cent	875	88	310	102	178	71	21
60 to 69 per cent	681	24	123	45	75	31	5
70 to 79 per cent	752	14	84	42	98	39	3
80 to 89 per cent	682	9	66	36	57	42	2
90 to 100 per cent	1,984	13	321	169	272	1,281	22
Total [1]	12,032	12,032	12,032	12,032	12,032	12,032	12,032

[1] As may be seen from the above totals, the entire number of staff members reporting is considered for each of the kinds of work to which staff members devote time.

TABLE 42.—*Percentage of staff members' time devoted to undergraduates, according to geographic location*

Major geographic division	Total number of cases	No reply	No time	Per cent of time									
				1 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 100
1	2	3	4	5	6	7	8	9	10	11	12	13	14
North Atlantic	2,079	282	475	26	71	106	88	76	167	157	116	129	386
North Central	4,883	891	979	64	175	263	239	239	401	292	344	283	713
South Atlantic	1,383	333	455	13	32	44	45	34	54	68	75	49	181
South Central	1,806	570	295	16	32	53	47	48	106	66	106	95	372
Western	1,881	351	349	20	60	105	92	88	142	97	114	115	348
Entire United States	12,032	2,427	2,553	139	370	571	511	485	870	680	755	671	2,000

TABLE 43.—*Percentage of staff members' time devoted to graduates, according to geographic location*

Major geographic division	Total number of cases	No reply	No time	Per cent of time									
				1 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 100
1	2	3	4	5	6	7	8	9	10	11	12	13	14
North Atlantic	2,079	312	1,235	133	173	120	48	22	25	4	2	2	3
North Central	4,883	1,066	2,656	288	362	249	108	82	38	15	7	6	6
South Atlantic	1,383	348	837	59	81	36	9	5	3	0	3	1	1
South Central	1,806	594	932	68	101	66	23	8	10	1	0	0	3
Western	1,881	397	1,065	144	146	69	30	12	12	4	2	0	0
Entire United States	12,032	2,717	6,725	692	863	540	218	129	88	24	14	9	13

TABLE 44.—*Percentage of staff members' time devoted to research, according to geographic location*

Major geographic division	Total number of cases	No reply	No time	Per cent of time									
				1 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 100
1	2	3	4	5	6	7	8	9	10	11	12	13	14
North Atlantic	2,079	299	1,078	106	166	120	51	40	54	24	21	19	101
North Central	4,883	1,004	2,227	276	411	323	153	107	158	58	35	25	106
South Atlantic	1,383	346	771	55	64	45	16	17	17	6	5	5	36
South Central	1,806	594	890	64	86	55	24	10	27	9	7	8	32
Western	1,881	397	956	77	119	85	66	30	54	26	16	9	46
Entire United States	12,032	2,640	5,922	578	846	628	310	204	310	123	84	66	321

TABLE 45.—*Percentage of staff members' time devoted to creative work, according to geographic location*

Major geographic division	Total number of cases	No reply	No time	Per cent of time									
				1 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 100
1	2	3	4	5	6	7	8	9	10	11	12	13	14
North Atlantic	2,079	315	1,408	104	86	61	25	19	16	4	4	6	31
North Central	4,883	1,074	3,036	212	202	125	48	37	42	14	18	16	59
South Atlantic	1,383	349	873	35	37	22	10	9	7	6	4	3	28
South Central	1,806	603	996	58	50	28	11	9	13	8	5	5	20
Western	1,881	407	1,127	68	90	47	36	21	24	13	11	6	31
Entire United States	12,032	2,748	7,440	477	465	283	130	95	102	45	42	36	169

TABLE 46.—*Percentage of staff members' time devoted to administrative work, according to geographic location*

Major geographic division	Total number of cases	No reply	No time	Per cent of time									
				1 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 100
1	2	3	4	5	6	7	8	9	10	11	12	13	14
North Atlantic	2,079	309	964	276	187	117	47	41	33	12	19	10	64
North Central	4,883	1,051	2,080	714	379	205	118	55	72	35	44	28	102
South Atlantic	1,383	345	693	121	75	49	32	9	17	6	9	1	26
South Central	1,806	595	750	145	92	69	38	24	31	4	13	6	39
Western	1,881	390	768	279	171	79	47	38	25	18	13	12	41
Entire United States	12,032	2,690	5,255	1,535	904	519	282	167	178	75	98	57	272

TABLE 47.—*Percentage of staff members' time devoted to extension, according to geographic location*

Major geographic division	Total number of cases	No reply	No time	Per cent of time									
				1 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 100
1	2	3	4	5	6	7	8	9	10	11	12	13	14
North Atlantic	2,079	314	1,280	146	80	34	16	11	14	7	8	5	164
North Central	4,883	1,072	2,676	339	132	68	30	14	27	11	15	22	477
South Atlantic	1,383	346	559	55	40	14	13	3	14	6	13	9	311
South Central	1,806	598	861	106	52	14	2	1	2	4	0	3	163
Western	1,881	402	1,025	157	79	22	6	1	14	3	3	3	166
Entire United States	12,032	2,732	6,401	803	383	152	67	30	71	31	39	42	1,281

TABLE 48.—*Percentage of staff members' time devoted to public contacts, according to geographic location*

Major geographic division	Total number of cases	No reply	No time	Per cent of time									
				1 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 100
1	2	3	4	5	6	7	8	9	10	11	12	13	14
North Atlantic	2,079	311	1,151	466	111	23	4	3	4	2	1	0	*3
North Central	4,883	1,059	2,516	991	235	41	16	6	8	2	0	2	7
South Atlantic	1,383	344	733	208	74	17	0	1	2	0	0	0	4
South Central	1,806	599	841	265	66	16	4	3	4	0	1	0	7
Western	1,881	397	950	386	106	28	8	1	3	1	1	0	0
Entire United States	12,032	2,710	6,191	2,316	592	125	32	14	21	5	3	2	21

An elementary act of judgment makes it perfectly evident that a staff member who holds the Ph. D. is not invariably a better teacher or investigator than a staff member who holds only the master's or bachelor's degree, but when a large group rather than an individual case is considered it seems to be a reasonably safe assumption that the group holding the higher degrees will perform academic functions more effectively than the groups with lesser amounts of training. The relationship of degrees held to the time devoted to various types of institutional duties makes an interesting study. Data in regard to these matters are presented for examination by Tables 49 to 55. It will be noted that a larger per cent of the staff members holding doctor's degrees than of any other degree group gives some time to undergraduate instruction. However, a smaller per cent of the doctors than of any other group gives from 80 to 100 per cent of their time to undergraduate instruction. Further, since only 18 per cent of the entire staff holds the doctor's degree it is apparent that undergraduate instruction is carried on in large part by other staff members.

Even more interesting and significant are the figures with reference to the degrees held by those who conduct graduate work. Attention is called to the fact that only 236 of 435 staff members who hold no degree report that they conduct no graduate work. If it is assumed that the 184 who made no reply to this question in fact conduct no graduate work, a total is obtained of 420 nondegree holders who conduct no graduate work. This leaves 15 who have not themselves obtained any degree conducting the work of students for advanced degrees. By making similar combinations and subtractions of figures it seems that in the land-grant institutions there are 383 staff members who hold the bachelor's degree as their highest earned degree who are giving graduate work to students. Further, if it is assumed that the graduate students instructed by those themselves hold the master's as their highest degree, are all students

seeking degrees no higher than the master's, the situation is such as to cause even more concern about the character of graduate instruction in the land-grant institutions as a group. Eight hundred and seventy-six staff members hold degrees no higher than those for which their instruction is intended to prepare students. Thus 1,274 staff members or slightly more than 10 per cent of the total are giving instruction to students who seek degrees as high or higher than those held by their instructors.

TABLE 49.—*Percentage of time devoted to undergraduates by staff members according to highest degrees received*

Highest degree received	Total number of cases	Percentage of time devoted to undergraduates						
		No reply	No time	19 or less	20 to 39	40 to 59	60 to 79	80 to 100
1	2	3	4	5	6	7	8	9
No reply	781	366	206	12	12	35	30	120
No degree	435	177	123	8	16	21	26	64
A. B. or B. S	4,543	1,171	1,294	123	246	384	382	943
M. A. or M. S	4,082	544	620	206	379	506	598	1,229
Ph. D. or Sc. D	2,189	169	310	160	429	408	399	314
Miscellaneous	2	0	0	0	0	1	0	1
Total	12,032	2,427	2,553	509	1,082	1,355	1,435	2,671

TABLE 50.—*Percentage of time devoted to graduates by staff members according to highest degrees received*

Highest degree received	Total number of cases	Percentage of time devoted to graduates						
		No reply	No time	19 or less	20 to 39	40 to 59	60 to 79	80 to 100
1	2	3	4	5	6	7	8	9
No reply	781	380	373	19	8	0	0	1
No degree	435	184	236	10	3	1	0	1
A. B. or B. S	4,543	1,298	2,862	275	71	25	8	4
M. A. or M. S	4,082	671	2,535	628	193	40	6	9
Ph. D. or Sc. D	2,189	184	717	623	483	151	24	7
Miscellaneous	2	0	2	0	0	0	0	0
Total	12,032	2,717	6,725	1,555	758	217	38	22

TABLE 51.—*Percentage of time devoted to research by staff members according to highest degrees received*

Highest degree received	Total number of cases	Percentage of time devoted to research						
		No reply	No time	19 or less	20 to 39	40 to 59	60 to 79	80 to 100
1	2	3	4	5	6	7	8	9
No reply	781	376	358	19	8	6	4	10
No degree	435	184	231	13	1	3	1	2
A. B. or B. S	4,543	1,263	2,543	306	175	109	40	107
M. A. or M. S	4,082	638	2,129	532	354	194	74	161
Ph. D. or Sc. D	2,189	179	659	554	400	202	88	107
Miscellaneous	2	0	2	0	0	0	0	0
Total	12,032	2,640	5,922	1,424	938	514	207	387

TABLE 52.—*Percentage of time devoted to other creative work by staff members according to highest degrees received*

Highest degree received	Total number of cases	Percentage of time devoted to other creative work						
		No reply	No time	19 or less	20 to 39	40 to 59	60 to 79	80 to 100
1	2	3	4	5	6	7	8	9
No reply	781	379	349	20	13	11	2	7
No degree	435	184	218	17	8	2	2	4
A. B. or B. S.	4,543	1,309	2,711	247	118	58	26	74
M. A. or M. S.	4,082	681	2,697	369	153	68	33	81
Ph. D. or Sc. D.	2,189	195	1,463	289	121	58	24	39
Miscellaneous	2	0	2	0	0	0	0	0
Total	12,032	2,748	7,440	942	413	197	87	205

TABLE 53.—*Percentage of time devoted to administrative work by staff members according to highest degrees received*

Highest degree received	Total number of cases	Percentage of time devoted to administrative work						
		No reply	No time	19 or less	20 to 39	40 to 59	60 to 79	80 to 100
1	2	3	4	5	6	7	8	9
No reply	781	376	277	54	21	14	7	32
No degree	435	183	175	26	16	7	2	26
A. B. or B. S.	4,543	1,287	2,095	607	230	120	63	141
M. A. or M. S.	4,082	658	1,917	909	302	131	68	97
Ph. D. or Sc. D.	2,189	186	790	843	232	72	33	33
Miscellaneous	2	0	1	0	0	1	0	0
Total	12,032	2,690	5,255	2,439	801	345	173	329

TABLE 54.—*Percentage of time devoted to extension by staff members according to highest degrees received*

Highest degree received	Total number of cases	Percentage of time devoted to extension						
		No reply	No time	19 or less	20 to 39	40 to 59	60 to 79	80 to 100
1	2	3	4	5	6	7	8	9
No reply	781	379	226	28	7	2	7	132
No degree	435	183	149	11	4	3	4	81
A. B. or B. S.	4,543	1,294	1,936	284	92	50	30	857
M. A. or M. S.	4,082	682	2,503	519	80	35	24	239
Ph. D. or Sc. D.	2,189	194	1,585	344	36	11	5	14
Miscellaneous	2	0	2	0	0	0	0	0
Total	12,032	2,732	6,401	1,186	219	101	70	1,323

TABLE 55.—*Percentage of time devoted to public contacts by staff members with reference to highest degrees received*

Highest degree received	Total number of cases	Percentage of time devoted to public contacts						
		No reply	No time	19 or less	20 to 39	40 to 59	60 to 79	80 to 100
1	2	3	4	5	6	7	8	9
No reply	781	375	319	65	15	2	1	4
No degree	435	184	190	41	15	1	0	4
A. B. or B. S	4,543	1,294	2,386	778	50	22	4	9
M. A. or M. S	4,082	665	2,210	1,144	51	6	2	4
Ph. D. or Sc. D	2,189	192	1,083	880	26	5	1	2
Miscellaneous	2	0	2	0	0	0	0	0
Total	12,032	2,710	6,190	2,908	157	36	8	23

The relationship of age to attainment of the various academic ranks is shown for the United States and for each of the geographic areas by Tables 56 to 59. For the United States as a whole the great majority of staff members became instructors between the ages of 20 and 29, assistant professors between the ages of 25 and 34, and associate professors when from 30 to 39 years old. However, attainment of professorships shows much less decided concentration of age groups. Of those who replied 17.6 per cent became professors between the ages of 25 and 29; 28.2 per cent between 30 and 34; 26 per cent between 35 and 39; and 14.6 per cent between 40 and 44.

TABLE 56.—*Age at which staff members become instructors, according to geographic location*

Major geographic division	Total number of cases	No reply	Age							
			19 or less	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 or over
1	2	3	4	5	6	7	8	9	10	11
North Atlantic	2,079	690	11	531	563	175	64	25	6	14
North Central	4,883	2,084	20	932	1,158	457	143	55	24	10
South Atlantic	1,383	830	14	211	225	71	18	9	4	1
South Central	1,806	1,006	12	328	292	97	38	24	6	3
Western	1,881	798	4	305	461	201	68	33	8	3
Entire United States	12,032	5,408	61	2,307	2,699	1,001	331	146	48	31

TABLE 57.—*Age at which staff members became assistant professors, according to geographic location*

Major geographic division	Total number of cases	No reply	Age							
			19 or less	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 or over
1	2	3	4	5	6	7	8	9	10	11
North Atlantic	2,079	1,169	0	26	349	328	133	42	19	13
North Central	4,883	3,050	1	71	606	687	310	100	48	10
South Atlantic	1,383	984	0	48	164	120	43	17	3	4
South Central	1,806	1,260	0	46	246	154	59	24	14	3
Western	1,881	1,098	0	43	257	281	116	51	18	17
Entire United States	12,032	7,561	1	234	1,622	1,570	661	234	102	47

TABLE 58.—*Age at which staff members became associate professors, according to geographic location*

Major geographic division	Total number of cases	No reply	Age							
			19 or less	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 or over
1	2	3	4	5	6	7	8	9	10	11
North Atlantic	2,079	1,687	0	5	58	141	109	50	18	11
North Central	4,883	3,846	0	10	167	335	295	146	57	27
South Atlantic	1,383	1,108	0	11	77	98	51	26	8	4
South Central	1,806	1,472	0	9	104	110	71	20	12	8
Western	1,881	1,400	0	8	71	144	142	78	25	13
Entire United States	12,032	9,513	0	43	477	828	668	320	120	63

TABLE 59.—*Age at which staff members became professors, according to geographic location*

Major geographic division	Total number of cases	No reply	Age							
			19 or less	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 or over
1	2	3	4	5	6	7	8	9	10	11
North Atlantic	2,079	1,485	0	14	79	160	165	100	49	27
North Central	4,883	3,866	1	33	172	286	291	150	64	30
South Atlantic	1,383	1,079	0	7	72	80	74	42	19	10
South Central	1,806	1,400	0	13	83	140	88	46	25	11
Western	1,881	1,357	1	14	97	151	124	79	41	17
Entire United States	12,032	9,177	2	81	503	817	742	417	198	95

All institutions reporting in this study have staff meetings of one kind or another. Two report biweekly meetings, and 16 monthly, and in 26 institutions meetings are called at irregular intervals as occasion demands. Nine report that the staff meetings are used for the systematic discussion of teaching problems and 32 that they are

not so used. Thirty-eight report that such meetings are given over largely to special cases of routine business, while three report that they are not. The example of the 9 that use staff meetings for a systematic discussion of teaching problems is worthy of emulation by the others.

Fifteen institutions report group discussions of teaching problems by the entire institutional staff, 27 by the agricultural staff, 35 by departmental staffs in the division of agriculture. Thirteen have had instruction in teaching problems in organized courses and 30 by occasional lectures from educational experts either from within the institution or from other institutions.

Two institutions report that all these methods are used, 7 use four of the five, 12 use three of the five, and the others two or one. This indicates that considerable effort and attention are directed to the general subject of professional improvement.

Opportunity for staff members to take courses in their own institutions either in the division in which they serve or in other divisions is another method of professional improvement practiced widely. This privilege is a universal practice in the 45 institutions reporting on this matter. In not all cases, however, is graduate credit given. In 21 of the 45, study may be done by informal enrollment without registration and without expense, while 24 apparently require a more formal procedure. This practice seems to be desirable, especially when applied to those in the grades of assistants, instructors, associates, and possibly assistant professors, and when there is a well-considered specified limit for credit for any one individual at any one time.

Of the institutions reporting with reference to the practice of enrollments for members of the staff, 45 permit registration for credit by instructors and assistants. In 34 of these 45 institutions, instructors, and in 30, assistants, may register for credit and take advanced degrees on the basis of such work in other divisions than those in which they serve as staff members, and in 31 and 28 institutions, respectively, in the divisions in which they are members.

In the higher ranks there are limitations for registration by staff members in many institutions. Of the 45 institutions reporting, 35 indicate that assistant professors may enroll for graduate work. In 17 institutions they may receive advanced degrees from the faculty in which they are included and in 20 from faculties in which they are not included. Permission to associate professors to register for graduate work and receive credit for advanced degrees is reported from 27 institutions, but only in 11 of these may they receive degrees from the divisional faculty in which they serve, the others per-

mitting registration with other faculties only. In nine instances no restriction of this kind is imposed.

In 27 institutions professors may enroll for class work, but only 11 report that they may receive advance degrees in the divisional faculties of which they are a part and 12 in faculties in other divisions, 8 of these instances being without restrictions as to faculty.

While undoubtedly it is a desirable practice for all institutions to permit informal enrollment on the part of members of all ranks in certain courses in the institution in which they are interested, it would seem to be doubtful practice, at least in those institutions where library facilities are limited and the staffs are small, to permit members of the rank of professor, associate professor, and assistant professor to enroll in courses for credit with a view to securing advanced degrees from the institution in which they serve. Embarrassment may well arise when a man's colleagues are called upon to pass scholastic judgment upon their friend and academic associate. It would be far better, if at all possible, to provide for sabbatical leave to such members so that they may spend time in study in some other institution where there are better library facilities, larger and more experienced staffs, and where breadth of vision may be gained by new experience. This is recognized more and more by the land-grant institutions, many of which already provide regular sabbatical leave, others of which are working to secure it, while still others are in the hopeful attitude.

Local limitations of finance, legislative or executive indifference or opposition, may make it impossible or at least very difficult to secure sabbatical leave for the staffs of some of the State-supported higher educational institutions. Every effort needs to be made by administrative officers to overcome these difficulties. Well-considered plans designed conservatively to build up the character of the teaching body may in many instances provide an economical means of educational development.

In this connection it is interesting to note that 19 of the land-grant colleges and universities report that sabbatical leave is provided for in part in their institutions, 24 that it is not provided, while 1 indicates that although there is no regular provision for sabbatical leave, a member of a department may be granted 6 months' or a year's leave of absence with full or partial pay, provided the department is able to carry his load during his absence. In this instance each case is decided upon its merits as it arises. Table 60 shows the practice of the various institutions with reference to sabbatical leave.

TABLE 60.—*Practices of various institutions with refence to sabbatic leave*

Institution	Sabbatic leave provided		Number years service required	Interval between successive leave years	Cumulative leave		Salary of substitute paid by—		Salary received by absentee refunded if he does not return to institution		Covered by contract		Sabbatic leave regarded as—		Plans for leave required to be submitted for approval			Report on use of leave required		Teaching elsewhere regarded as proper use of leave		Other paid position regarded as proper use of leave	
							Institution	Person on leave					Earned by past service	Related to future service									
	Yes	No			Yes	No			Yes	No	Yes	No			Yes	No	To whom	Yes	No	Yes	No	Yes	No
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Alabama Polytechnic Institute		X																					
University of Arizona	X		6	6		X	X			X		X		X	X		President	X			X		X
University of California	X		7	1–7		X	X			X		X		X	X		Dean, president, regents.		X		X		X
Colorado Agricultural College		X																					
Connecticut Agricultural College		X																					
University of Delaware		X																					
University of Florida		X																					
Georgia State College of Agriculture.		X																					
University of Hawaii	X		6	6		X	X					X	X	X	X		President		X	X	X		
University of Idaho	X					X	X			X		X	X	X	X		do		X			X	
University of Illinois	X		6	7		X	X		X			X	X		X		Dean, president	X			X		X
Purdue University	X		6			X	X			X		X	X	X	X		President, dean	X			X		X
Iowa State College		X																					
Kansas State Agricultural College.	X		6			X		X	X	X				X	X		Dean or president	X			X		X
University of Kentucky	X		7			X	X		X				X	X	X		President	X			X		X
Louisiana State University		X																					
University of Maine		X																					
University of Maryland		X																					
Massachusetts Agricultural College.		X																					
University of Minnesota	X		6	6		X	X		X	X		X	X		X		President, regents		X		X		X

Mississippi Agricultural and Mechanical College.		×																				
University of Missouri	×		7	7		×	[1]×		×				×	×		President, dean, board.		×		×	×	
Montana State College	×		6	6		×	×		×		×		×	×		Dean, president, chancellor.	×			×	×	
University of Nebraska		×																				
University of Nevada		×																				
University of New Hampshire		×																				
Rutgers University		×																				
Cornell University	×		7	7		×		×		×	×		×	×		Dean to trustee		×		×	×	
North Carolina State College		×																				
North Dakota Agricultural College.	×		7			×	×				×		×	×		Dean, president		×		×		×
Ohio State University		×																				
Oklahoma Agricultural and Mechanical College.	×		7	7			×		×		×		×	×		Dean president, regents.				×		
Oregon Agricultural College	×		6	6		×		×	×		×		×	×		Dean, president	×		×	×		
Pennsylvania State College	×		7	7		×		×	×				×	×		Trustees		×		×		×
Rhode Island State College		×																				
South Dakota State College		×																				
University of Tennessee		×																				
Agricultural College of Utah	×		7	7		×			×		×		×	×		President	×		×		×	
University of Vermont	×						×				×		×	×		Dean, president		×		×		×
Virginia Agricultural and Mechanical College.		×																				
State College of Washington		×																				
West Virginia University		×																				
University of Wisconsin		×																				
University of Wyoming	×		6	6		×	×				×		×	×		Dean, president		×		×	×	

[1] One-half the salary is allowed to absentee and the substitute is employed for the remaining half.

Nineteen institutions regard sabbatical leave as related to future service, that is, as a preparation for improved service in the institution, while nine regard it as earned by past service. This is reflected in the conditions under which it is granted. Eleven institutions require that in the event the person on leave does not return, the salary which he received on leave shall be refunded to the institution. The other eight make no such requirement. In nine instances this provision is covered by contract.

That sabbatical leave also is regarded in the light of future service by many institutions is evident by the fact that 22 institutions require that plans for leave be submitted for approval before leave is taken. In only one instance is this not required.

Teaching elsewhere is regarded as proper use of leave by 5 institutions but is not so regarded by 19 institutions. Other paid work is regarded as proper leave by 6 institutions and is not so regarded by 12. In this connection certain desirable policies are laid down by several institutions. In one a person on leave may enter another paid position if it provides for professional advancement of the individual or gives opportunity for growth through productive research. Similar provisions are found in several others. It would seem, however, that accepting pay in another institution for teaching the subject taught in his own institution or doing work that takes physical and mental energy but which does not contribute to professional improvement are not regarded as proper use of leave. Even those who regard leave of absence as a traditional prerogative of the teaching staffs of higher educational institutions, and there is much in favor of this point of view, perhaps will be the last to look upon such occupations as proper use for sabbatical leave.

Faculty Welfare

Several land-grant institutions make special efforts to serve the faculty by providing faculty unions (5 institutions), faculty club rooms (14), faculty lunch rooms (9), or faculty reading rooms (7). A few institutions provide separate faculty equipment and facilities for physical exercise. One provides a faculty bowling alley; and 8 report faculty handball courts. Faculty tennis courts and locker rooms are maintained in 14 institutions. Three provide golf courses; 38 institutions allow the faculty access to gymnasium equipment and student facilities during certain hours. Ten land-grant institutions report provision for faculty housing. The record is of interest.

Alabama.—Eighty-five per cent of the faculty are housed in homes worth about $5,000 each. The rental charge is approximately $45 per month. Heat, light, and water are not furnished.

Connecticut.—About 30 houses provided for faculty members house 80 per cent of the faculty. The value of individual houses is about $12,000 with rentals of from $50 to $60 per month and water furnished free.

Delaware.—Thirteen houses house about 16 per cent of the faculty. Houses are valued at $6,000 each. Rental is $35 per month. Tenants pay for light, heat, and water.

Iowa.—Six faculty houses are provided, valued at $6,000 each. Rental is included as a part of salary and water is furnished free of charge, but tenants pay for light and heat.

Maine.—Six faculty houses accommodate 3 per cent of the faculty. Houses are valued at $6,000 each and rentals amount to $300 per year with water furnished free.

Minnesota.—A project is under way whereby a plot of land owned by the university will be leased to faculty members and assistance given in building residences.

Mississippi.—Forty-six faculty houses provide for 95 faculty members. These homes are valued at $4,000 each and rent for $8 per month. Light, heat, and water are furnished.

New Jersey.—One-third of the faculty women are provided for in two houses for unmarried women, and one for married.

South Carolina.—Ninety per cent of the faculty are provided with homes, but valuation and rentals are not stated.

Texas.—Fifty-five houses valued at $2,700 each are provided for 25 per cent of the faculty. Rental is $270 per year. Tenants pay for their own heat, light, and water.

Virginia.—Thirty-one per cent of the faculty live in 32 faculty houses and 4 faculty apartments. Individual houses are valued at $8,000 each and rent for $50 per month. Heat and light are furnished by the tenants and water by the institution.

No special provisions are reported for faculty health service, medical consultation, or treatment, except in the land-grant institutions located in the following States:

California.—Reduced rates in the University Hospital in San Francisco.

Connecticut.—Faculty may consult doctor at the college infirmary at the cost of $1 or $2. The doctor makes visits on the days he visits the college.

Delaware.—Arrangements are made with a local hospital to care for short illnesses, and special provision is made in cases of epidemics or contagious diseases.

Illinois.—University health service station is available for the faculty as well as for the students. The Mutual Benefit Hospital Association permits faculty membership.

Massachusetts Institute of Technology.—Faculty has full use of the department of hygiene and of the infirmary.

Minnesota.—Beginning in 1929, the same provisions became available to faculty members as are given students through the health service.

Mississippi.—Hospital with services of the college physician and surgeon and of a trained nurse, are available.

New Jersey.—Resident faculty women cared for by infirmary staff including nurses and physicians. Faculty men are not provided for.

Ohio.—Same as for students.

Tennessee.—Faculty members may go to the student infirmary.

Texas.—College physician and his staff are available at reasonable charges.

Virginia.—Infirmary and college physician with regular office hours are available at all times.

Wisconsin.—Faculty members may utilize the student health service, but must pay for it.

PART VIII.—THE LIBRARY

Chapter I.—Introduction

History

(1) *Before 1900.*—The libraries of land-grant institutions are to a large extent a development of the twentieth century. In size of collections, in use, and in relationship to instructional work, there is little resemblance in most institutions between the college libraries of 1890 and their successors of 1930. The older eastern colleges and universities, which were founded much earlier than the land-grant institutions, had assembled by 1890 collections of books fairly adequate for that period. Columbia University and the University of Michigan each had more than 75,000 volumes at that time, while many smaller colleges, such as Amherst, had more than 50,000. On the other hand, land-grant institutions had not the same opportunity to obtain similar foundations for their libraries, which in several cases, even in 1900, consisted of only 3,000 or 4,000 volumes.

The catalogue of the North Carolina State College of Agriculture and Engineering in 1890 states: "The library, like the college itself, is in its infancy, containing about 1,500 volumes. It will be steadily increased by the purchase of standard works." In 1895, exactly the same statement is repeated. Apparently the "purchase of standard works" was postponed during these years. In 1896, however, the library did show a slight growth, although still in the embryonic stage. The catalogue tells us that "The library, like the college itself, is in its infancy, containing about 1,900 volumes."

The catalogue of the Mississippi Agricultural and Mechanical College for 1886 informs us that "The library, with the additions made during the present year, contains 2,342 volumes, and affords facilities for scientific research." Ten years later (1896) the library had grown to 3,560 volumes, an addition of about 100 volumes a year. A more modest statement, however, is made in the catalogue for the corresponding year of "some facilities for scientific research." The conception of bibliographic needs for research has changed greatly since this catalogue was published. In 1893, the president's report of this college, "published for the information of the legislature,"

states frankly that the "library consists mainly of United States Government books. It is deficient in technical and literary books. There are but few books of reference even."[1] The expenditures for reading material for this library could not have exceeded a few hundred dollars a year at the most.

The character and use, as well as the size of these small libraries, are reflected, or perhaps in part explained, by the position of the librarian. Usually, the office was intrusted to some professor who gave to the library such attention as he could spare from his regular duties. In 1884, the librarian of the Kansas State Agricultural College stated, "During one hour of the forenoon and a few minutes at the close of the session, I have been in the library myself."[2] In one institution, at least, a clerk was hired to run the library. In 1876, a librarian was employed in Iowa State College at a fixed salary of $200 per year. "The year before the compensations of librarian and assistant librarians were increased from 7 to 9 cents per hour."[3] Many of the early catalogues of land-grant institutions do not indicate that anyone had charge of the library. W. J. Beal's History of Michigan Agricultural College states that "there are no records available, giving the names of persons who had served as librarians previous to 1872."[4] The early catalogues of many institutions do not even mention the library.

Early, however, the need was felt for greater library development. In 1873 the professor at Kansas State Agricultural College who was acting as librarian reported, "It will be noticed that, under the present arrangement, any time that I spend on library work is just so much added to the full work in the teaching. It seems as though the growth of the library must very soon bring the time when it will be desirable to secure some one whose work it shall be to make the library more useful to the students."[5] In 1894 the librarian at the University of Illinois reported, "* * * other considerations of importance, in my judgment, make it imperative that a trained librarian should be employed, and that cataloguers should be placed at his direction * * *. The board gave me the librarian's duty to perform, without my knowledge, until I was actually appointed. I have cared for it as faithfully as I could, but I do not feel that I can continue the work for another year, and accordingly ask to be relieved therefrom."[6]

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[1] Mississippi Agricultural and Mechanical College, biennial report, 1892–93, p. 10.

[2] Kansas State Agricultural College, fourth biennial report. Report of the librarian, 1883–84, p. 63.

[3] Quoted in an unpublished thesis by Evangeline Thurber, The library of the land-grant college, 1862–1900, Columbia University, 1928.

[4] Beal, W. J., History of Michigan Agricultural College, 1915, p. 472.

[5] Kansas State Agricultural College, fourth biennial report, 1883–84, p. 63.

[6] University of Illinois, board of trustees, seventeenth report, 1894, pp. 250–251.

Before 1900 the need for a full-time professional librarian and increased purchases of books were being strongly urged in many institutions. These rumblings presaged the development which took effect in most, but not all, of the libraries of land-grant institutions in the first quarter of the twentieth century.

Growth since 1900.—The libraries of land-grant institutions in their development since 1900 fall into three groups. Institutions of the first group have apparently only started on the development of their libraries. In some cases the duties of librarian are even now assigned as an additional duty to a member of the instructing staff. In other cases clerks are employed. The expenditures for books and periodicals in these institutions show little or no increase since 1914, although the cost of books, binding, and periodicals has nearly doubled. The libraries of this group naturally show little use as compared with the growing collections of other institutions. They are still in the status that existed generally in 1890.

Institutions of the second group have started the development of their libraries since 1920. Professional library staffs have been employed, new buildings erected, and library expenditures increased. Louisiana State University was spending less than $6,000 on its library in 1915, but is now allotting $40,500. Iowa State College was spending $20,000 in 1915 and now has a budget of $110,000. Oregon Agricultural College, from $8,500 in 1915, has risen to $46,000 in 1927. The libraries of these institutions have shown encouraging growth. However, since they started their development so recently, their collections have not reached the adequacy of those libraries which had the advantage of many years of more liberal support.

Libraries of the third group, which had had these advantages, started on their modern development early in this century, or even before. During the first 10 years of the century rapid progress was made. In 1910 the University of California was spending more than $46,000 on its library, the University of Illinois more than $62,000, and the University of Nebraska more than $26,000. Since 1910 the development has been greatly accelerated. In 1927 the Universities of California, Minnesota, and Illinois spent considerably more than $200,000 each for library service.

Growth of libraries in these second and third groups is well illustrated by the number of new library buildings. More than three-fourths of the institutions have either erected new buildings or additions within the past 10 years or are planning such buildings.

Increase in use.—The most noteworthy fact in the history of most libraries of land-grant institutions, however, is not the growth in collections of volumes, the increase in expenditures, or in number and size of library buildings, but the increase in use of books. The

need of reading and research material for students and faculty is the underlying cause for the larger collections, the larger buildings, and the larger expenditures.

The increase in use is indicated by the attention given to the library in the catalogue of the institutions. Before 1900, the library was listed incidentally after farms, shops, and museum collections, if, indeed, it was mentioned at all. Now the library is given prominence as one of the important factors in the educational resources of a college.

The number of books loaned for home reading emphasizes more strongly the increasing library requirements of modern education. George A. Works, in his study made of university and college libraries, reported that only 2 out of 18 libraries could give statistics of the number of books loaned in 1900 for home reading.[7] The practice of many libraries may have been similar to that of the University of Michigan, which loaned no books for home reading by students before 1906. At present the average student in many land-grant institutions is borrowing from the library from two to four books a month for home reading, in addition to his use of books within the library building.

College libraries have also been obliged to increase the hours during which they are open. The college catalogue of the past century made almost no statement as to the hours during which their libraries were available for the use of students. Occasionally a note was made that the library is open two or three hours a day. One college annual in 1894 referred humorously to the fact that a mouse, more daring than the college students, ventured into the library and was suffocated. The libraries of the past century were practically never open in the evening. To-day a majority are open 14 hours a day, from 7.30 or 8 in the morning until 10 or 10.30 in the evening. At present the library in many institutions is the one building most used for educational purposes—one to which students go daily.

The increased use in most libraries has been caused by modifications in methods of instruction which demand more and better library service. Instructors are directing their students to the authorative sources of knowledge, rather than restricting them to one textbook. They are encouraged to search for material and methods personally rather than to memorize formulæ or the pages of a single text. These modifications in methods of instruction require libraries whose functions emphasize service to the individual rather than the collection of books for safe preservation or the erection of buildings chiefly as architectural memorials. The question of use has become paramount.

[7] Works, George A., College and university library problems, 1927, p. 123.

This increase in use is not uniform in all institutions. In the first group, those institutions which have not started on the development of their libraries, students apparently do comparatively little reading from library books, borrowing an average of two or three books a year instead of two or three a month. These libraries are closed in the evening and possess meager book collections.

Functions of Libraries

A library of a land-grant institution has five functions, more or less overlapping. These functions are: (1) To aid directly in the instruction of students, both graduate and undergraduate, by supplying reading material, with suitable facilities for its use; (2) to provide for and to aid research by making available the necessary source material: (3) to aid faculty members to familiarize themselves with current developments in their respective fields; (4) to make possible and to encourage general reading by faculty and students; and (5) to aid in the extension service of the institution by supplying printed material and information to persons beyond the campus.

The library in relation to effective teaching.—During the past 25 years the "seminar" method of instruction, formerly used only in graduate colleges, has been extended to undergraduates; reading has replaced much of the instruction formerly given by lectures or study of textbooks. Doctor Meikeljohn, of the University of Wisconsin, has strongly emphasized the importance now given to reading as a means of instruction.

> College men after four years of lecturing are not in the true sense educated men. The most obvious, striking, and universal characteristic of the uneducated graduate of the American college is that he does not read books. We have got to stop the lecture procedure * * * and begin our instruction by reading. In my opinion that is the only fundamental method of instruction.[8]

Extensive reading by college students is largely dependent upon adequate library facilities. It is not surprising, therefore, to find that educators to-day agree that an efficient library is necessary to effective teaching in colleges and universities. The case is well stated by Dr. G. W. Rosenlof as an introduction to his "Library facilities of teacher-training institutions."

> Certainly to-day, we look upon the library as one agency that most truly supplements the work of the teacher in the classroom * * *. Literature, history, science, art, and all the subjects of our curricula, including professional courses in teacher training, to be effectively taught, depend more and more upon unlimited library resources. The textbook will no longer suffice. The college library is now generally admitted the sine qua non of scholarship, both academic and professional. If teaching is to be interesting, virile, and com-

[8] A. L. A. Proceedings, 1928, p. 334.

manding, there will have to be a very complete supplementing of its activities by a live and growing library, properly selected, classified, and administered. If the final test of education is to be measured in terms of general intelligence, efficiency, and high ideals of citizenship, then there is a real place and function for the library in every school, no matter what may be that school's purpose or the type of student it seeks to train.[9]

The library in relation to research.—Progress in a research field depends largely upon a knowledge of what has been accomplished previously in that field. Such knowledge is obtainable from a search of the literature in the field to be covered. An editorial in the Experiment Station Record states:

> The investigator should be familiar with what has been done in his State or elsewhere on the problem he proposes to study. * * * Failure to build upon the past frequently means aimless wandering about in fields previously explored in the same desultory fashion.[10] In 1912, Dr. A. C. True, then director of the Office of Experiment Stations, stated, "A necessary preliminary to all successful research work is the examination of the records of similar or allied work. These records are contained in books and periodicals." [11]

The function of the library in its aid to research is to make available these records of the past. The book collections are fully as important as the laboratories. The work of a library is not confined merely to the collection of suitable material. Such material must be indexed, adequate arrangements must be made for its use, and material not locally available must be located elsewhere and borrowed. These processes are essential to a successful research program.

The library in relation to intellectual development of the individual instructor.—For the continued effectiveness of a teacher, intellectual growth is essential. An instructor can not teach adequately the subject matter in his field unless he knows the recent developments in that field and the changes which are taking place, whether such developments are published in English or in foreign journals. To acquaint himself with progress in his field he requires not only the latest books but, even more, the periodical publications. Unless he uses such material he will be teaching the subject matter of his own school days rather than that of to-day. This statement holds especially in the fields of the pure and applied sciences.

An illustration of the need for periodical literature is the attempt of Profs. P. L. K. and E. M. Gross to ascertain for the field of chemistry what files of scientific periodicals are needed "in a college library successfully to prepare the student for advanced work, taking into consideration also those materials necessary for the stimulation and intellectual development of the faculty." [12] As a result of their

[9] Rosenlof, G. W., Library facilities of teacher-training institutions, 1929, p. 7.
[10] Experiment Station Record, 55: 303, September, 1926.
[11] A. L. A. Proceedings, 1912, p. 334.
[12] Science, 66: 386–387, 1927.

study they listed 28 scientific periodicals which they believe necessary to the chemist not only in a university with a graduate school but also in a small undergraduate college. The subscriptions to some of these journals vary from $50 to $100 per year and are beyond the financial resources of the average instructor. Unless the library supplies this type of material as well as books many in the teaching staff will be deprived of sources of knowledge that are essential to their progress.

Dr. F. A. Ogg, in speaking of college libraries, states:

> A more generous outlay of money is required to make them very much better than they are; and it is a matter of simple fairness to the scholars who are in the service of the institutions concerned, as well as a necessary guarantee of higher quality of that service, to do all that can possibly be done to enrich their opportunities for a fruitful intellectual life.[13]

The library in relation to general reading of students.—The importance of general reading has received considerable emphasis during the past few years. Wide reading by college students has been urged not only as a necessary means of gaining adequate knowledge of any subject, but also as the most important means of broadening interests and establishing lasting reading habits—the most important contributions a college can make to the liberal education of the individual. President Glenn Frank stated in 1927, "Even though a man have as many degrees as a thermometer, even though he be graduated with the highest of honors, he is grossly uneducated if he halts his reading and learning with his graduation. * * * The best thing the university can do for the 'rah rah college man' is to waken in him a zest for thinking and the habit of reading."[14] Many an individual owes the inspiration which directed his career to the incidental reading of a book.

It is an important function of a library to purchase and supply books for general reading. But its duty does not end there. It should use every means possible to encourage the reading of such books. They should be so placed that students can see them and handle them. They should be made "easy to use." Special shelves or special rooms should be reserved for books of general interest. All new books of this kind that are added to the library should be displayed for a week or two where all can examine them.

The library in relation to the State at large.—The land-grant institutions are publicly supported. The citizens of a State regard it as their institution and as a source of aid on many and various problems. Extension services were established in recognition of this fact. In extension courses, which require reading, study, and research, the library has an opportunity to render valuable assistance by extend-

[13] Ogg, F. A., Research in the humanistic and social sciences, 1928, p. 365.
[14] A. L. A. Proceedings, 1928, p. 334.

ing its service beyond the campus. In most cases its aid will take the form of cooperating with the extension and home-study departments, having material that is readily available as it is needed. However, it would not be fulfilling its complete function if it simply cooperated with these departments. Individuals who are not undertaking systematic training may have need of library facilities. This assistance consists of the loan by mail of books and pamphlets directly to groups, such as debating teams and women's clubs, study groups of any sort, or to industrial concerns that are conducting research investigations.

The service of this type that the library of a land-grant institution can render will depend greatly on the local library conditions in the State. In any State, however, the State college library has or should possess material, especially in the fields of agriculture and engineering, that would, if made available, afford most excellent facilities for educational advancement to many citizens and organizations of the State. The information desired may be supplied directly to individuals or by loans through local libraries or through county agents. The extension services have to a considerable degree successfully taken the college to the people. The library has a similar function independently and in cooperation with the extension services.

Summary—Importance of library.—The necessity of an efficient library for effective instruction, for research and investigation, for the intellectual growth of the faculty, and for general reading is generally recognized by those of high standing in the educational field and is accepted as fundamental in this survey. There is general agreement as to the position of the library as the heart of the college. The object of this study, therefore, is not to justify this conception of the library but rather to ascertain the present status of libraries in land-grant institutions and the means and methods necessary to obtain and maintain efficient library service in these institutions.

Requirements for Good Library Service

A library, to function effectively, requires an understanding by college administrators of the following necessary conditions: (1) Adequate book collections, (2) suitable buildings and equipment, (3) satisfactory relationships of library to institutional administration and to faculty, (4) competent and sufficient library personnel, and (5) adequate financial support.

These requirements are not new. All were emphasized, for example, in the reports of the librarian of the University of Illinois in 1894 and, in part, in reports of Kansas State Agricultural College

and Louisiana State University some years earlier. They were again emphasized by Dr. A. C. True in 1912. Where they prevail, the library is the actual center of the intellectual life of the institution.

The data collected in the survey were used to ascertain in so far as possible (1) the extent to which the libraries of the land-grant colleges are meeting the requirements mentioned, and (2) recommended methods by which the requirements may be met. In the following section of this report the actual use made of libraries at the present time is given first consideration as a necessary introduction to successive studies of books, buildings, administrative control, personnel, and financial support. The term instructor is used in this report to signify any member of the instructing staff.

Chapter II.—Usability of Libraries

Use of Books the Sole Purpose of Libraries

The efficiency of a library is measured by the service which it renders to faculty and students. Librarians understand—what was not understood 50 years ago—that large book collections, well-arranged buildings, scholarly and willing personnel are essential solely in order that books may be used. Measurements of the actual use of the libraries included in this survey are statistically possible. Such measurements as were reported or otherwise ascertained provide the basis for the conclusions reached and the recommendations made for improvement of service. The measurements are considered in succeeding paragraphs in terms of (1) proportion of students using the library daily, (2) loans for home reading, (3) books for assigned reading, (4) number of interlibrary loans, and (5) seating capacity and utilization of seats.

Measurements of Use

Proportion of students using the library.—The number of individuals who use the library is an indication of the quantity and perhaps also of the quality of service. On account of the work involved actual count was not requested in the survey. A few libraries, however, reported statistics. Excluding students who come for classes or for "dating" parties, one librarian reported that the average student used the library four times a week. Another institution reported an average of six times per week. These figures can be used by any institution as a basis for comparison with the attendance in its own library. The two reporting libraries represent a high standard of use, judged by the figures reported of books loaned for home reading and use of seating capacity, both of which are far above average. The figures, therefore, may be taken as a tentative standard. It should be noted in addition that these two libraries are open 13 and 14 hours a day, respectively. A personal examination of some other libraries justifies the statement that the attendance of students at these libraries is generally far less than that of the two reporting libraries. This conclusion is further strengthened by the fact that these other libraries are open 7 hours per day, instead of 14, and are closed during most or all of the evening hours when students are most free to use books.

Number of books borrowed for home reading, not overnight use.—Data were requested as to the number of books loaned for reading outside of the library building, excluding books borrowed solely for overnight use. In order to obtain figures which would be somewhat comparable for the various institutions, the number of books loaned at each reporting institution was divided by the number of full-time students at the institution. The results are given in Table 1. The figures obtained are, it is true, a general rather than an exact criterion of the use of the libraries and of the reading by students. Not all books loaned by a library are loaned to students. Nevertheless, as the basis is the same for all institutions, the results have certain significance, especially in the extreme cases of loans less than an average of 7 a year by each student or greater than 15, figured on the basis of the total number of books loaned divided by the total number of full-time students. The average number of books loaned each student by the various institutions varied from 3 to 33 a year. The average was 12.

TABLE 1.—*Total number of books loaned per year, excluding overnight loans, divided by number of students enrolled*[1] *as of October 31, 1927*

Institution	Number of students	Number of books loaned	Number loaned per student
Alabama Polytechnic Institute	1,610	10,900	7
University of Arizona	1,740	16,275	9
University of California	17,005	204,049	12
Colorado Agricultural College	1,160	15,296	13
University of Delaware	707	19,310	27
University of Florida	1,904	20,625	11
University of Hawaii	666	18,701	28
University of Idaho	1,912	25,422	14
University of Illinois	12,033	165,131	14
Purdue University	3,623	36,558	10
Iowa State College	4,033	80,978	20
University of Kentucky	2,393	23,421	10
Louisiana State University	1,970	10,805	5
University of Maine	1,346	16,922	13
Massachusetts Agricultural College	593	9,659	16
Massachusetts Institute of Technology	2,712	35,929	13
Michigan State College	2,741	19,945	7
University of Minnesota	11,050	60,090	5
Mississippi Agricultural and Mechanical College	1,397	11,856	8
Montana State College	905	4,495	5
University of New Hampshire	1,658	36,338	22
Cornell University	5,671	45,509	8
North Carolina State College	1,432	11,208	8
North Dakota Agricultural College	1,059	12,283	11
Ohio State University	10,183	63,361	6
Pennsylvania State College	3,854	43,675	11
Rhode Island State College	626	1,500	3
Clemson Agricultural College	1,212	9,600	8
University of Tennessee	2,725	34,258	13
Virginia Agricultural and Mechanical College	1,251	19,841	16
West Virginia University	2,459	27,791	11
University of Wyoming	1,044	34,418	33

[1] The number of students was taken from U. S. Bureau of Education Bulletin, 1929, No. 13, p. 30.

A comparison of financial expenditures for libraries with the number of books loaned for home reading was made in order to determine if any relationship existed. The expenditures were reduced to an average for each student in order to form a basis for comparison. Nine of the 14 institutions that expended annually less than $12 per student for library purposes showed an average loan of 8⅓ volumes per student per year. The remaining 5 could not report the number of such loans. The average number of loans to the average student by 6 institutions—Massachusetts Agricultural College, University of Hawaii, Iowa State College, Universities of Tennessee, Wyoming, and Illinois—which reported annual library expenditures of more than $20 per student was 20 volumes per annum. In certain of these institutions the average student withdrew from five to ten times as many books a year as is the case of the group with the lowest expenditures. Two of the three institutions with the lowest average number of loans for each student were also the lowest in financial support, although other factors than expenditures influence the use of the library by students, it is apparent that the amount of expenditure bears some relationship to use.

Too definite conclusions can not be drawn solely from the number of books loaned. Several factors may affect such loans. A large number of departmental libraries may lessen the withdrawal of books for home use. Also, it may be assumed that inadequate library buildings with limited seating capacity would increase the number of books borrowed, while on the other hand adequate seating facilities would lessen the necessity of withdrawal of books for use outside the building. This supposition does not seem to hold true. Five libraries with known inadequate facilities as to library buildings and also with limited financial support showed an average loan of fewer than 7 volumes per student as compared with an average of more than 12 for the whole group of land-grant colleges. It is apparent that inadequate buildings, as well as lack of financial support, are associated with relatively slight use of books. On the other hand, four of the six institutions mentioned above, with loans per student much above the average, have recently erected new buildings.

Amount of assigned reading.—The number of books withheld from circulation for assigned reading in the library may provide a rough indication of the use of books in a library. It might be supposed that a large number would cause a decrease in the loan of books for home use. The opposite is true. In the six institutions previously mentioned with annual expenditures of more than $20 per student and with average loans per student of 20 volumes per annum, an average of 90 books was on reserve for each 100 students. In the eight institutions with annual expenditures less than $11 per student and with average loans of 7⅓ volumes per student, 60 books were on

reserve for each 100 students. Indeed, if Kansas State Agricultural College, which seems to have developed extensive use of its library with limited financial resources is excepted, the books in the assigned reading room for the second group is fewer than 50 per 100 students—not much more than one-half as many as in the case of the libraries in the first group. Libraries, in general, with loans of books above average have also a greater number of books available for assigned reading per student than do the libraries with loans below average.

Use shown by books borrowed from other libraries.—The number of books borrowed from other institutions also gives some indication of the use of library material in a given institution. A library with inadequate collections would ordinarily, it would be supposed, need to borrow much more material from other libraries than would institutions with strong collections. This supposition also proves to be contrary to the facts. Institutions borrowing more than 200 volumes each in 1927–28 from other libraries were University of Illinois, Iowa and Kansas State Colleges, Massachusetts Institute of Technology, Universities of Minnesota, Missouri, New Hampshire, and Ohio State. These are chiefly institutions, in so far as the libraries reported figures, with the stronger collections and with use of their own collections generally much above average. On the other hand, the seven colleges which reported loans much below average and also with book resources known to be most limited borrowed an average of eight books per year from other institutions. Again it is apparent that faculties in this latter group are not using published material as are the faculties in the first group, even after allowances are made for the size of the institutions.

The inference seems logical that a number of libraries are not supplying material which is demanded of libraries in other land-grant institutions. Possibly the faculties in the institutions of the second group have become discouraged in their attempts to obtain material, or possibly they are content with poor library service and lack of material. If the latter is the case, the quality of the instruction may be open to question.

Ratio between seating capacity of library and number of students—Exhaustion of seating capacity.—Some indication of the use of libraries may be obtained from the number of available seats in proportion to the number of students, compared with reports as to whether seating capacity is sufficient. The University of Florida, with one seat for every five students, reports crowding at certain periods, especially in the evening. Iowa State College, with a ratio of one seat for every eight students enrolled (560 seats for 4,200 students), reports all seats filled at times. Oregon Agricultural College, with the same percentage (480 seats for 3,780 students), also reports seating capacity not sufficient at peak times; University of

Hawaii has 152 seats for 840 students (one seat for 6 enrolled students). These institutions are above average in loans.

On the other hand institutions reporting loans far below average show in cases where reports are made: (*a*) 1 seat for 21 students; (*b*) 1 seat for 12 students; (*c*) 1 seat for 10 students; (*d*) 1 seat for 11 students; and (*e*) 1 seat for 14 students. This group has also few or no departmental libraries, while most libraries of the first group mentioned supplement their central library by additional seats in departmental reading rooms.

It appears that libraries with limited use as shown by loans have, in general, limited seating capacity within the library buildings.

Summary

These five tests of the use of libraries, considered independently, do not seem to give an adequate basis for definite conclusions. A consideration, however, of all these criteria taken together reveal certain facts which are significant. One group has loans much above average (20 per annum). A second is much below the average in books loaned to each student for home reading (7 per annum). Institutions in the second group also have fewer books available for assigned reading for each student than have those in the first group. In addition, their borrowings from other libraries are small, and the seating capacity of their libraries is less than 1 to every 10 students enrolled. New library buildings are noteworthy in the first group but are lacking in the second. In each of these five tests every library in the first group, in so far as figures are reported, ranks higher than any library in the second group. Objection may be made to the absolute validity of any one of these tests, yet the fact that certain institutions are much above average and that other institutions are much below average in every one of these tests can not be attributed to chance. This fact is emphasized further by the fact that the average expenditure per student for library purposes for institutions in the first group is more than double the expenditure in the second group.

The inability of many librarians to give statistics of the use of their libraries is noted later in this report. Several did not report the number of loans of books to students, the amount of interlibrary loans, and the seating capacity. The following conclusions are based on the data submitted: (1) Certain land-grant institutions show indications of comparatively little use of the library by the average student; and (2) a definite relationship exists between lack of use and financial support. Libraries with small use showed average library expenditures of less than $11 per student; libraries with use well above average had expenditures of more than $20 per student.

Chapter III.—Methods of Facilitating Use

While in general the lack of use of most libraries of land-grant institutions is due to inadequate financial support, which results in inadequate books, buildings, and personnel, the data collected for this survey by questionnaires and personal visits indicate some practices in various libraries which tend directly to increase or to discourage the use of books. These methods deserve consideration, independent of the question of books, buildings, and personnel.

The card catalogue and the delivery and reference desks are the most important points of contact between the reader and the library. Such subjects as instruction in use of books and special aids to research workers also demand some attention.

Use of Card Catalogue

"*Look it up in the catalogue.*"—The average student in the land-grant institution does not know how to use a card catalogue. Raymond L. Walkley in a study made of the knowledge of students in regard to use of books and libraries reported:

> Out of 343 freshmen, only 163 claimed any previous acquaintance with either card catalogue, Dewey classification, or magazine index; only 40 per cent had ever used a library card catalogue, less than 15 per cent knew what the Dewey classification meant, and only 20 per cent had used magazine indexes.[35]

A personal observation at loan desks of several institutions revealed the fact that the not uncommon reply to an inquiry for a definite book was "Look up the call number in the catalogue." Several of these students were followed to watch results. Generally, they went to the catalogue, were unable to find what they desired, and left the library without either the desired material or encouragement to make future use of the library. The material, nevertheless, was there. In several cases the comment was heard, "I never can find anything in this library."

In view of the inability of students to use the card catalogue as an effective tool, one of the clear indications of poor library service is the conventional phrase, "Look it up in the catalogue." If a student can be given some assistance at the beginning of his college course, he will be able to help himself later. Otherwise, the probabilities are that the library catalogue may be an unknown tool to him throughout his life.

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[35] Library Journal, 45: 775–777, Sept. 15, 1924.

Dr. D. A. Robertson, of the American Council on Education, notes at the University of Richmond the frank and friendly resort of students for suggestions and assistance to a library attendant.[16] The John Crerar Library has had for 20 years an assistant whose special duty it is to assist readers in the use of the card catalogue. The information desk in the New York Public Library is well known. The University of Illinois has an information desk with an assistant whose special duty it is to show readers how to use the catalogue. Iowa State College has started such a service. In a large institution a special assistant for this work will prove invaluable. In the smaller institutions a sufficient staff at the loan desk can perform this service.

Efficiency of Catalogues

Satisfactory use of the catalogue requires that it be an efficient tool. Too often it is not. Three books on farm engines of about the same scope were entered in one catalogue under three different headings—Farm engines, Agricultural engineering, Gas engines—with no references to guide the seeker from one heading to another. Any reader might have found one of the three books; it is doubtful if he would have found all three. A special assistant at the catalogue of the larger libraries, or the loan assistant in the smaller, may be as valuable in informing the cataloguing staff of the needs of readers as in interpreting the catalogue to readers.

It is due to the Library of Congress that the catalogue is as efficient as it is. For the past 30 years, printed cards have been available, making it possible for libraries to secure at far less cost card records which are more satisfactory in accuracy and scholarship than any which they can produce independently. The large use of these cards by land-grant colleges is indicative both of the extent to which they are attempting to maintain the effectiveness of their catalogues and also of the value of the service rendered. Only three institutions report that they are not obtaining Library of Congress cards for at least 50 per cent of their accessions. One institution reports it obtained cards for 99.8 per cent of its accessions. Three institutions report 95 per cent, and several others 90 per cent. The larger institutions that are purchasing considerable material in foreign languages report the lowest percentage of printed cards obtained. The University of Illinois receives only 50 per cent, Ohio State 54 per cent, Cornell about the same. An examination in one library of titles for which printed cards are not available reveals the fact that the greater proportion of such titles are in foreign languages. It is apparent that many libraries are cataloguing independently the same titles in foreign languages. To this extent work is duplicated.

[16] "The college library." Educational Record, 10: 22–23, January, 1929.

If arrangements could be made to enable the Library of Congress to print cards more generally for publications not in its own collections but available in university libraries, many assistants in land-grant institutions could be released for necessary work in other library departments, and in addition the accuracy of the catalogue would be improved.

The fact that the income from the sale of cards reverts to the Federal Government presents difficulties in the more general printing of catalogue cards by the Library of Congress. The proceeds from the sales of cards go directly to the Treasury Department. Increased sales involve increased expense to the Library of Congress, with no compensation from the sales. A change in the Federal statutes which would permit receipts from the sales of cards to be used for printing would seem desirable.

Not only the question of sales, but also the entire subject of cooperative cataloguing needs intensive study. This question has been often discussed in library circles but does not seem to have received effective consideration. The increasing need of some study is shown by the fact that the annual number of additions to land-grant college and other libraries of publications in foreign languages is increasing rapidly. T. F. Currier, of Harvard College, states the problem as follows:

> The question that the investigation must answer is this: Can practicable methods be introduced further to centralize cataloguing? If so, who is to be responsible for managing the proposition on a sound financial basis, the American Library Association, a committee of librarians, or a commercial firm in it for profit?[37]

Instruction in Use of Libraries and Books

To freshmen.—The inability of many college freshmen to use card catalogues and library indexes has been noted in a previous paragraph. In order to familiarize them more quickly with the use of books and library tools, some class instruction has been given to freshmen at many land-grant institutions. The form and extent of this instruction vary greatly. The principal argument for it is that the use of books can be taught more economically and satisfactorily to students in groups than to individual students as they come to the desk for help with their problems.

Only two institutions are giving such instruction to all freshmen as required courses. One of the two requires one hour for six weeks, using primarily assignments of problems. In the second, instruction is given one hour every other week for the first semester. In addition, the College of Arts and Sciences in the University of Mary-

[37] Currier, T. F., Extension of centralized cataloguing. Library Journal, May 15, 1929, p. 438.

land requires one hour each week of library instruction for a semester. The Women's College of Rutgers University has a required course.

The universities of New Hampshire, Minnesota, Illinois, and Pennsylvania State College have elective courses of one or two hours for a semester. It is obvious, however, that elective courses do not meet the requirements, because such courses are not elected usually by those who need the instruction most. Required instruction for a few hours for all freshmen would seem preferable to one or two quarter or semester hours as an elective. Seven colleges note that instruction is given by the English department as part of the regular work. Three colleges have recently dropped courses by the library staff and substituted instruction by the English department as part of the course in freshman English. The reason given in one reply to the questionnaire is as follows:

> Funds were not available for the hiring of an additional staff member, and the librarian recommended that the course be discontinued if such help could not be furnished, as we were forced to neglect the regular work of the library if we continued to carry on a creditable scholarly course. The English department is now introducing a few lectures on the use of some of the more important reference books in the library.

In view of the diversity of practice in regard to instruction in the use of the library, it is desirable to attempt to state the objectives of this instruction and to determine the most effective means of attaining them. W. F. Headley, professor of education at Carleton College, states:

> Every freshman should make it his early business to find his way among the materials of his college library as much as among the buildings on his campus. A few hours given to a study of the library and its use will save him untold time and anxiety, render more efficient his work in every course, and stamp upon him for life one of the marks of a scholar.[18]

The attempts of many colleges to provide some instruction in these tools indicate that the need is realized.

Tests have shown that college students are not sufficiently familiar with library tools to enable them to find bibliographic material needed in their courses. Freshmen should acquire early in their college course the ability to use periodical indexes, such as Readers' Guide, Engineering or Agricultural indexes, the most common encyclopædias and reference books, and the card catalogue. They should be familiar with such works as Murray's Oxford Dictionary, Stevenson's Home Book of Verse, Granger's Index to Poetry, dictionaries of quotations, and statistical abstracts. The objectives of such instruction are to enable the student to use with ease the card catalogue and the more common bibliographic tools.

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[18] A. L. A. Education Committee, School Library Yearbook, No. 1, 1927, p. 99.

The means generally used to attain these objectives are not entirely satisfactory. A lecture or two during freshman week may be valuable as a means of familiarizing the students with the library building. At this time instruction in regard to the use of definite books does not seem feasible. Neither are lectures alone a satisfactory method of instruction. A study was made of the results of a lecture to 30 students on the use of a library building as compared with results obtained by the assignment of a problem requiring the use of the building given to another section of 31 students. In an examination the following week, 28 of the 30 students using the lecture method failed to average 50 per cent. In the examination of the second section following the completion of the problem, 29 of the 31 students averaged more than 50 per cent.

The purposes of this instruction can be accomplished by the assignment of certain definite library problems to all freshmen, to be worked out as laboratory exercises. The problems will require the examination by each student of the catalogue and the most important reference books. Typical problems can be found in the School Library Yearbook for 1927. The students should meet in small sections for preliminary direction and should do their work under supervision. No fewer than four nor more than six problems would seem necessary. This work might well be incorporated in other courses, such as the freshman orientation courses or freshman English, but direction and supervision should be given by professional members of the library staff. Librarians should be familiar, far more than other members of the faculty, with the difficulties of students in the use of the library. For satisfactory instruction in most land-grant institutions, both a careful scheduling of sections to avoid overcrowding of the library and a strengthening of the library staff will be necessary.

Instruction in Use of Books

To graduate students.—The need for familiarity with bibliographic tools is not confined entirely to freshman. A knowledge of source material is essential to satisfactory instruction in the graduate college. Discussions with many graduate students and a cursory examination of some theses indicate clearly that there are many students in land-grant colleges who are not acquainted with the important indexes and abstracts in their own field. Master's examinations at one institution revealed recently (*a*) a candidate, minoring in psychology, who was unaware of the Psychological Index; (*b*) candidates in agriculture who did not know of the compilation of "Classified list of projects of the agricultural experiment stations"; (*c*) a candidate in sociology who did not know the defintion of a legal code nor the difference between primary and secondary sources.

The lack of knowledge of bibliographic sources is the chief cause of many "blind" citations, which can not be identified. Anyone who has attempted to verify references in master's and doctor's theses of many land-grant institutions will realize the difficulties in identification of citations. An attempt to identify six misstated references to bibliographic sources revealed the fact that in all the cases the individuals in charge of the major work could not identify the references. In three cases the authors could not identify the references which they themselves had made. Some faculty members also show a lack of knowledge of bibliographic sources. An assistant professor in home economics hunted in vain for a bulletin of the "United States Dental Association," only to learn eventually that she had misinterpreted the abbreviation "U. S. D. A."

To familiarize graduate students with bibliographic tools, certain institutions are giving special courses for graduates and advanced students in the use of research material. The University of Illinois requires a course on the use of chemical literature for those majoring in chemistry. The Massachusetts Institute of Technology has courses in chemical literature and chemical library technique. Ohio State University offers a course in bibliography of social science. Iowa State College has given special courses in subject bibliography to graduate students which were elected by 80 students in 1928. Many courses in various departments at the University of Chicago in the use of source material are listed in its catalogue. It is probable that many other institutions are giving similar instruction through seminars. The number of such courses is increasing rapidly in American universities. They should be definite aids in acquainting graduate students with the literature of their subjects and with bibliographic methods. In certain universities instruction is given by departments; in a few universities, by members of the library staff.

Graduate courses on bibliographic subjects are not given, however, in many of the graduate colleges of land-grant institutions. Departments in many land-grant institutions can facilitate and improve the work of their graduate students by giving instruction of this kind. This instruction can be given in formal courses or in seminars. At the University of Illinois bibliographic courses in chemistry have been given by the librarian of the chemistry department. The library staff in most land-grant institutions is not at present qualified to engage actively in this instruction. The addition to the library staff of specialists in certain fields of knowledge would remove this disqualification.

Instruction in Use of Libraries

To prospective teachers.—Another phase of instruction in use of the library is concerned with the familiarity of prospective teachers with

books and libraries. A county superintendent in an unpublished address stated the case as follows:

> Students go through high school with little knowledge of books and how to use them. The colleges give them no instruction. Graduates accept teaching positions still ignorant of the part books and reading should play in the educational objectives of the modern school. It is a vicious circle.

A further need for instruction in the use of books is shown by the fact that certain teachers, especially in the more thinly populated States, are and will be required to serve as part-time librarians, until more rigid requirements for school librarians are in force. If such teachers are to possess any knowledge of library methods, the information must in many cases be obtained during their college course. Even one or two elementary courses in librarianship offered for a few hours would be of decided assistance.

The Carnegie Foundation for the Advancement of Teaching recommends for prospective teachers the requirement of a course in the use of libraries for one hour a week for a term. "There can be little doubt that the work is important enough to merit a separate course that may well be a constant in all curricula and given soon after the student enters the school."[19]

Ten land-grant institutions are offering such courses, but in no institution are the courses required by the school or college of education. In several cases instruction is given only in the summer session. The failure to give courses in the use of libraries and books may be due to the fact that few library staffs at present are fully qualified in education or sufficient in numbers to teach these courses. The fact, however, that the library staff may not be qualified is no reason for the omission of courses deemed desirable or necessary, but is a justification for a strengthening of the staff.

As a preparation for teaching, a greater knowledge of the use of books as a means of instruction in secondary schools is desirable. Schools of education should recognize the growing importance of such knowledge, either by a required course as recommended by the Carnegie Foundation or by some other effective means.

Delivery or Supply of Books to Readers

The not uncommon direction to a user of a library to "Look it up in the catalogue" has served to introduce a somewhat extended discussion of the card catalogue and instruction in the use of the resources of a library. A whole series of other standardized replies used by many loan-desk assistants deserves some attention in the consideration of the supply of books to readers. A few minutes

[19] Carnegie Foundation for the Advancement of Teaching, Bulletin 14. The professional preparation of teachers for American public schools, 1930, p. 246.

spent at the loan desks of many libraries will reveal difficulties experienced by readers and students. Much more assistance, much more encouragement to use of libraries, and much more service to efficient instruction would follow the substitution of informational replies for the mechanical ones now frequently given. "The attendant (or I) will show you how to find it in the catalogue"; "If you need this special book, we will call it in for you"; "The magazine went to the bindery three weeks ago and should be back next week. If you are in urgent need, we will rush it"; "The book can not be found, but we are ordering another copy, which should be here next week." Instructions to loan-desk assistants to give some such replies would create a decidedly different attitude on the part of faculty and students toward the library. It is presupposed that the promise will be fulfilled.

Prof. C. B. Joeckel, of the University of Michigan, himself a librarian, referring to "occasions where we librarians cease to serve others and are ourselves patrons," tactfully states the case as follows:

> Some of the most humiliating experiences I have ever had have been at times when some precise and efficient young woman has answered politely every question I had intelligence enough to ask and has still left me in complete ignorance of what I really wanted to know. Such individuals, whether they be loan assistants or counter clerks for public utilities or railroad information assistants or what not, have not passed beyond the eye-for-an-eye or the tooth-for-a-tooth stage.[20]

Some of these difficulties in the use of libraries have been given little attention in library publications. No statistics of unsatisfactory use have been published. Nevertheless, such matters are believed to be of major importance to the individual user for whom college libraries are primarily intended—the ordinary everyday student. An interesting case study might be made of the results of stereotyped replies made by loan-desk assistants. The lack of determination to obtain for a reader the book he requests and the lack of personal interest in the individual reader are two of the greatest detriments to good library service to-day. An observation of the work at the loan desks of many libraries will disclose this fact.

Proportion of requests not supplied.—What proportion of books called for at the loan desk is not supplied? Twenty-six institutions reported that over one-third of the books called for were not supplied; of 3,953 calls, 2,501 were supplied and 1,452 were not supplied. The proportion seems large. Of the 1,452 calls not supplied, 474 were, however, in the assigned reading room and presumably available, which reduces the number to 978—about one-fourth of the total

[20] Library Journal, 54: 527, June 15, 1929.

called for. The chief reason for the nonsupply of books was the fact that books called for were charged out to other readers.

The reply, "The book is out."—One of the most annoying features to a user of a library, second in importance only to the reply, "Look it up in the catalogue," is to be told a book is "out." Such a reply without additional information is not uncommon. In public libraries it is of little advantage to know who has the book; in colleges and universities this information may be invaluable, especially in cases where absent-minded professors refer students to the library for books which the professors themselves have personally withdrawn. Only a few libraries report a consistent practice of notifying the student of the name of the individual who has the desired book or of offering to call in any book charged out for over two weeks.

Reports have been made of books locked up in professors' offices for months (years in several cases) and unavailable for students or junior members of the faculty. Twelve institutions report collections of books charged out to professors for more than a year; in some cases, 6, 7, and 8 years. Complaints by graduate students of books locked up in offices and unavailable have been noted. Extensive loans for long periods affect service to many readers and are a serious detriment to use of books. Although nearly all libraries reported that books charged out are recalled once a year or more often, yet many of these libraries showed the inconsistent practice of permitting many books to remain charged out for several years. A book is certainly of more value if being read by a student than if it is lying idle on a shelf in some office.

A few libraries report a remedy for these conditions. The University of California, for example, has the rule that if a book requested is "out," the name of the borrower will be given and an offer made to call the volume in, if it has been loaned for any considerable period. On the other hand, a loan-desk assistant in another library stated, "We would never think of recalling a book from a professor for a student."

There is apparently a need of a more strenuous effort on the part of libraries to give the student or the instructor the book desired.

"The book is lost." Charges for lost books.—Another annoying reply to an inquirer for books is the conventional phrase, "The book can not be found," or "The book is lost." The loss of books presents more than financial difficulties. It results in the inability of readers to obtain books when needed. Losses are a serious detriment to library service. Charges for books lost by students and faculty have proved a decided aid in effecting more prompt return of books and a reduction in the number lost. After a rigid system of charges was put into effect, one professor returned to a library

more than 100 books which he previously had reported he could not find.

It is more than futile to charge for lost books unless these charges are collected. One librarian reported that her library charged for lost books but never collected. Thirty-three out of 48 institutions reported that they charged faculty members for lost books. In most cases, however, no satisfactory methods were noted of collecting such charges. In 14 cases out of 48 bills were rendered by the treasurer or business manager. This method is apparently effective. Washington State College reports the following practice. The departments are held responsible for the return of the books. Inventory is taken once a year. "If the faculty member does not promptly pay for losses incurred, the matter is referred to the bursar to collect out of last month's salary."

Charges to students were collected in 10 institutions through the treasurer's bills, in 20 through withholding of grades, and in 12 by charges against student deposits previously made. To avoid the billing of small accounts, charges in many cases were held in the library until the amount of such charges was 50 cents or more.

Many of the difficulties caused by "lost books" will be removed if charges for such books, whether against faculty or students, be forwarded to the treasurer and collected exactly in the same manner as other institutional bills. This method of collection is recommended.

"*The book is being bound*," "*The book has been ordered*," "*The book can not be taken from the library*."—Librarians and faculty disagree as to the hindrance to service caused by the withdrawal of material for binding. Librarians in general reported few calls for magazines at the bindery and gave in only six cases the requested figures for calls during one average day for magazines withdrawn for bindery but not yet forwarded. One library reported 17 called for in one day and 16 supplied. Most of the others reported "No demand," "Rarely called for," etc. Less than one-half of the institutions knew the average length of time books were at the bindery. Yet in the reported tests made at one loan desk, 10 per cent of the material requested and not supplied was due to the withdrawal of publications from the shelves for binding. Furthermore, 170 members of the faculties of the institutions (about one-third of those reporting) stated "delay at the bindery" as being an important cause of difficulties in their use of library facilities. Obviously many librarians do not appreciate the difficulties caused library users by the withdrawal of material for binding. Binding is essential, but the time required can undoubtedly be reduced at many institutions.

Nine institutions have their binding done by contract, in four cases through a State department under State law or by State printer.

The time at bindery of all reporting ranged from four weeks to three months, the average being between five and six weeks. Books bound under contract required over eight weeks on the average. The awarding of binding by contract through price competition does not seem to produce the best service either in regard to speed of binding or of quality of the work. If contracts are necessary, fully as much attention should be paid to length of time required and the quality of work done as is paid to price. Poor binding and long delays are expensive in any case.

Delays in ordering of books are noted by faculty members in a few cases, but not as important factors. The University of California loans books awaiting cataloguing. Another institution reports that any book which is in process of cataloguing and needed by a reader will be made available in 24 hours. A third library, however, replied to a reader who urgently needed a certain publication that "the book is being catalogued, and we don't know when it will be available."

The use of certain material, such as popular periodicals and reference books, etc., is so great that such material is needed in the library constantly. The fact that these publications are unavailable for home or office use is at times a hindrance to the use of books. Some libraries have purchased additional copies of popular magazines and have duplicated material such as census reports, etc., for circulation. This procedure makes available the most used publications for use outside of the library building. This duplication is at least in some cases not expensive and may prove an effective aid in the use of books.

The failures to meet requests because of books withdrawn for binding, books not available on account of cataloguing, and books too popular to loan, are further instances of the need for more consideration for the individual reader. The effectiveness of many libraries can be increased by speeding up the binding and ordering of books, by loaning books even if in process of cataloguing, and by making available for home or office use duplicates of certain inexpensive material.

Speed in delivering books to readers.—Of the 26 institutions reporting on the time required to supply books to readers, 14 filled over one-half the requests within two minutes. The institutions with the larger collections of books naturally required more time. In all the institutions, three-fourths of the material was supplied within three minutes. The complaints often heard that service at the loan desk is too slow do not seem to be justified by the data submitted.

Telephone and Messenger Service

The use of the telephone and the delivery of books to faculty members by messenger service show a great variation in land-grant

institutions. A few complaints of failure to obtain information from the library over the telephone were noted. Three institutions indicated telephone calls for library service in excess of 30 a day. Twelve stated that books were customarily delivered by messenger. Other institutions reported no telephone or messenger service.

The time of faculty members and research workers is valuable. It is much more valuable than the time required of a student assistant to answer telephone calls or to deliver books. These services in some institutions have been commended by faculty members as being distinct aids to the use of libraries.

Assigned Readings

Books assigned but not supplied.—The assignment by instructors of certain books for required reading is not a recent development, but its wide extension to many departments of instruction is an expansion of the past 10 years. At present all college libraries are making special provisions for such assignments; in the large institutions by the use of special rooms known as the assigned or required reading rooms.

Upon the basis of the reports of libraries that were able to furnish figures, it would seem that the number of books needed for required reading has doubled in the past few years. The University of Tennessee reported an increase from 600 in 1923 to 1,800 in 1928; Rutgers from 1,000 in 1925 to 2,200 in 1928; Montana State College from 50 in 1914 to 500 in 1928. It is probable that such use has not reached its maximum in most land-grant institutions and will continue to increase as instructing methods change and efficiency of library service increases.

The use of textbooks as a sole means of instruction is becoming obsolete. Of 598 instructors, 573 stated that they used in their nonlaboratory courses as a method of instruction, assigned topics and references to library books.

The great increase in assigned readings which has already arisen has caused immediate difficulties in the use of books by students. The data submitted for this survey indicate clearly that these difficulties are caused by three factors: (1) Failure of instructors to notify the library of their assignments to classes of books for required reading; (2) lack of funds for purchase of necessary books; and (3) assignment by instructors of rare and out-of-print books. Of these three factors, the first is by far the most important.

Dean Charters, in an address before the faculty of one land-grant institution, referred as a matter of good instruction to the necessity for each instructor to ascertain that the library material to which he referred his students is actually available for use in the library before the list of books is given to the students. Practically all land-

grant college libraries reported that many classes were referred to the library for definite books without prior notification being given. Thirty-eight out of forty-seven libraries reported that the greatest difficulty in the use by students of books for required reading was due to this failure by instructors. Seven libraries reported that one-half or more instructors did not send such notification. If prior notification is not given the books needed are not available, either because they have not been purchased or because they have been withdrawn for home use by the first student to reach the library after the assignment has been made.

An analysis by one institution of call slips for books "charged out" showed that the inability to supply more than one-half of the calls for books charged out was caused by the fact that instructors sent classes to the library for definite books without consulting the library staff and making arrangements to have the necessary material placed on reserve or even to make sure that the material is available in sufficient quantity.

Any librarian can collect for a few days the statistics of the proportion of books not supplied to students on account of failure of instructors to notify the library. A presentation of actual figures might convince instructors of necessity for action. One exasperated librarian gave certain figures to a sympathetic president who in the presentation of the matter at the next faculty meeting added a comment that he had requested the librarian to notify him of any instructor failing to send advance notice to the library of assigned readings. The difficulties were immediately removed—for the time being. In another case the library committee was able to convince the faculty of the difficulties in service experienced by failure to check assigned reading lists with the library. It is believed that as soon as the average instructor fully understands the reasons for the failure of his students to obtain desired material the difficulties will be removed.

The second hindrance to the satisfactory use of assigned readings is inadequate provision for the purchase of duplicate copies. Thirty-seven libraries report a lack of funds for this purpose. The proper use of funds available is intimately related to the question of the number of duplicates to be bought. Several institutions report that all duplicates must be bought from the funds of individual departments. This solution is not satisfactory. If the books are needed, they should be bought by the library, since the library has accurate information, not available to departments, of the demands and actual use of library books by students. The books necessary for required reading for all courses offered by a college should be made available by the college as a regular part of the library service, as is

now done at many institutions. The amount of duplication should be decided in each case from the actual use. Some libraries have a rule of a maximum duplication on the basis of one copy to every 10 students. A report of the number of requests for books for assigned reading which are not supplied will justify the allotment to the library of sufficient funds for purchase of the necessary material.

The third problem affecting the use of assigned readings, at least in the larger institutions, is due to references by instructors to rare books and periodicals. The results can be imagined if a class of 300 is given individual access to the account of the Battle of Gettysburg in the New York Tribune for 1863, as was requested in one case. No class reference to the Gutenburg Bible has yet been noted, but other fifteenth-century books have been requested for reading by large classes. Even recently published periodicals and society publications are to a large extent irreplaceable if worn out. Much valuable material published in out-of-print periodicals and society publications will become very quickly worn out, if used intensively by a considerable number of students. The assignments of volumes of these sets to classes have resulted in the permanent loss of this material, causing many gaps in valuable sets. Yet it is not expensive to photostat or mimeograph the pages needed. The possibilities of mimeographing or photostating irreplaceable material do not seem to be appreciated. Only five libraries report that they are taking advantage of these methods.

The reported data on the various phases of assigned reading indicate clearly a need for closer relationships and a thorough mutual understanding between the faculty and the library. An active and efficient library committee can improve the instructional work of an institution by emphasizing repeatedly to the faculty the requirements just mentioned. The data also indicate the need in many institutions for a greater duplication of books.

Hours Libraries Are Open

The increased number of hours which college libraries are open is a noteworthy commentary upon their use as well as upon their changed functions. In the early history of agricultural colleges, "it was not unusual for the new libraries to be open only an hour or two in the morning and the same length of time in the afternoon." [21] At the beginning of the century, many libraries were open 10 to 12 hours a day. During the past few years, there has been a still further increase. The American Library Association Survey

[21] Thurber, Evangeline. "The library of the land-grant college," p. 34. Unpublished thesis. Columbia University, 1928.

(1926) reports no college library open after 10.30 p. m., nor more than seven hours on Sunday. Rutgers is now open from 8 a. m. to 11 p. m. on week days. The University of California is open from 9 a. m. to 10 p. m. on Sunday. Twenty-one of forty-eight reporting libraries close before 10 in the evening. Three are not open at all in the evening. One closed at 8 p. m. Twenty-three are closed all day Sunday.

A comparison of the hours libraries are open indicates that some libraries in the land-grant group are not being used sufficiently to justify in the eyes of the administrators the longer hours which libraries of other institutions, with less enrollment, find necessary. Some land-grant college libraries do not meet the standards in this respect which existed in other libraries in 1900. Those which for the most part show the smallest loan service are open the least number of hours. If the use of the library is not sufficient to justify keeping the library open 12 or 14 hours a day and at least 4 hours on Sunday, the efficiency of the library and the methods of instruction at the college are open to question.

Access to Books

The opportunity afforded students actually to handle books has long been recognized by modern libraries as an important factor in the use of books. However, as collections increase in size beyond 50,000 volumes, difficulties arise if stacks are opened to all undergraduates. To meet the need for examination of books and to give opportunity to students to "browse" among them, shelves have been placed in various public rooms of the library. In the larger libraries these shelves contain more volumes than were found in many libraries 25 years ago. The University of Illinois has 19,000 volumes in reading rooms open to all students; University of Minnesota, 13,000; Iowa State College, 18,000; University of California, 20,000, not including departmental or reserve reading rooms. The returns of this survey show that no complaint was made of closed stacks where 10,000 or more volumes were available in public reading rooms.

The five institutions which noted student complaints of closed stacks were institutions whose total book collections numbered from 16,000 to 109,000, and whose collections available in public reading rooms numbered, respectively, 4,998, 6,200, 1,100, 1,500, 1,420. All these institutions, in so far as reported, also show loans per student that are below average. Twelve institutions do not have 10,000 volumes on open shelves available to students. Several have fewer than 2,000 volumes so available.

Book collections in libraries of fewer than 30,000 volumes will be used more if the stacks are open to all students. The difficulties

which arise in open access in large libraries can be removed in smaller collections by adequate supervision. In large libraries not fewer than 10,000 volumes should be placed on shelves open to all undergraduates.

General Reading of Students

The easy access to a considerable collection of books is obviously a decided encouragement to students to read, to browse among, and to examine books, not only for special courses of study but also for general and cultural information. The importance of such general reading by students has been emphasized during the past few years. Departments of instruction are urging, to an increasing degree, extensive reading, not only of technical books but also of those books of a general nature which will widen the viewpoint and enlarge the perspective and increase initiative of individual students.

The library has certainly a much greater opportunity in this field than simply to fill requests. It must not only meet the more exacting demands for required reading and special scholarly service; it should also encourage in the individual a love of books and reading; it should stimulate the desire to read; it should make books tempting to read and easy to obtain. How far are the libraries encouraging such general reading?

It is obvious that libraries which are adding only a few hundred books a year can not meet even the demand for technical instructional work, much less the requests for general reading. These libraries are in the elementary stage of library development.

A list of books generally much in demand was checked by land-grant institutions for this survey. Eight libraries did not have This Believing World, 4 did not have Microbe Hunters, 4 did not have Why We Behave Like Human Beings, 12 did not find Trader Horn necessary, 8 did not purchase Fruit of the Family Tree, although this volume is considered by some faculty members as especially valuable for general reading and was placed on the required list for students at Purdue. On the other hand, the Agricultural and Mechanical College of Texas has placed exceptional emphasis upon such books. It reports 9 copies of This Believing World, 4 copies of Why We Behave Like Human Beings, 2 copies of Fruit of the Family Tree, etc. Of a list of 14 books of popular interest this institution had all. Certain other land-grant institutions had not one on the list; others had two or three.

There is noted a great variation in the use of books for general reading. The Agricultural and Mechanical College of Texas reports that, in spite of its rather extensive duplication, it had 154 names on the waiting list for 8 of the books of popular interest listed in the questionnaire. More than three-fourths of the land-grant institu-

tions, although they duplicated much less freely, reported practically no names on the waiting list for the same books. The importance of the subject justifies a consideration of the methods used by libraries to encourage students to read.

Many public libraries have recognized the lure of books by placing collections in various parts of the library where they will be readily accessible and "easy" to look over. Especially is this true of the more recent publications. Shelves of such books seldom fail to attract attention. The interest in new publications may well be utilized as a means to interest students in reading and the use of books. College libraries have not taken advantage to the same extent of this natural interest in recent additions. Only 13 of 48 reporting institutions placed all new books of general interest on a display case for a week or so. True, many of them had a display case, but the new publications went, not to it, but to faculty members when requested by them. This very fact robs the display case of its most interesting material. One student, on looking over a shelf of recent additions, remarked, "It looks like a survival of the unfit." If all publications of general interest are displayed for a week, those interested can sign up for them and withdraw them in turn. These signatures may be an indication of the need of duplication, and will insure not only that the books can be examined but that all who desire to read them will have the opportunity.

Most libraries keep a waiting list for books of general interest. Four libraries of land-grant institutions reported that they kept no such list. In other words, if an individual desired a certain book for general reading and if the book was "charged out," he would not be notified when the book was returned. His only chance of obtaining the book would be to happen in the library when the book came back.

Lists of new additions inserted in college newspapers or mailed to members of the faculty assist in stimulating the use of books. Lists should be used as an additional incentive and not as a substitute for the opportunity actually to handle the volumes.

"Browsing" rooms or sections of shelves for "browsing" purposes have been mentioned as a decided stimulus to general reading. But in some cases the incentive has been materially lessened by refusal to allow books so shelved to be loaned outside the building. If it seems desirable to retain in the library books for general reading, duplicate copies of these books should be provided and made easily accessible.

The lack of general reading among college students of several land-grant institutions is undoubtedly due to a lack of funds for books of general interest. In more instances, however, it is probably due to a lack of interest on the part of the librarian and possibly to a desire to serve the faculty at the expense of the students. The librarians of

the larger land-grant institutions especially can well give more attention to the encouragement which the library should give to increased general reading by students. The college student should be given not only the opportunity but also the encouragement to read. This phase of library service is one of major importance which has received the least emphasis and is most generally inadequately covered by land-grant institutions.

Books on a Rental Basis

In an attempt to increase the number of books available for general or assigned reading, recourse in a few cases has been made to special fees or rental charges. Three colleges report books loaned on a rental basis. In one case special fees for required reading are charged by two departments. In a second duplicate fiction is loaned at 5 cents per copy. A third institution reports a "faculty reading club."

General and technical reading is so intimately associated with efficient instruction that it would seem to be as much a function of the college to supply material for reading assignments as to supply instructors. The only justification for special fees or special charges would seem to be to supply material which can not generally be regarded as a legitimate part of the general library collection, such as the loans of textbooks for personal use or of duplicates of recent fiction. Even in such cases it may be questioned whether such service should not be assigned to the bookstore.

Informational Service and Reference Work

"*Where can I find it?*" *Service to research workers.*—Many individuals, both students and faculty, who come to a library do not have definite books in mind. They wish information on certain detailed subjects not indexed in card catalogues nor always in periodical indexes. To aid such inquiries most libraries have established "reference departments." The inquiries may be simple, such as increases and decreases in number of hogs in a certain State during the past 10 years, or more complex, such as a list of the earliest references to transmission of Malta fever through cow's milk. An observer who spends two hours at a reference desk during a day can judge very quickly of the efficiency of this phase of library service. How many students come naturally and easily to the desk? How many are afraid? How many members of the faculty consult the reference librarian, either personally or by telephone? How many books written by members of the faculty express in the customary "acknowledgments" an appreciation of the services of the librarian? An observation of this branch of library service at an effective library will show its importance.

Twenty-eight of the forty-eight reporting libraries have reference librarians. These 28 include the 11 libraries which show the greatest use by the average student as measured by loans. The 28 also include some institutions with relatively small student enrollment, such as the universities of Hawaii and Wyoming, the two institutions which showed the most loans of books per student. Twenty institutions do not employ a reference librarian. Among them are included the nine libraries which showed the lowest number of books loaned per student.

The educational qualifications of reference librarians, as a class, have an important relationship to the services they can render. Three of the institutions which employ reference librarians reported that such assistants have no collegiate degree. Of the 11 institutions with indications of comparatively large use of their libraries, 8 reported not only that they had reference librarians with college degrees but that the reference librarians had spent an average of nearly two years in study after their first degrees were obtained.

A well-educated and bibliographically trained library personnel is of decided service. Much valuable time can be saved to a research worker in many cases if the mechanical drudgery of working through abstracting journals, such as chemical abstracts, can be done for him, and if the material can be collected in an office or seminar room for his personal examination. A knowledge of subject matter by the reference librarian is almost essential in this work. Only eight institutions reported that they are attempting to compile material on research projects when such requests required work involving more than three hours, although 33 librarians regarded such work as a proper service of the library. Apparently the best-equipped of the land-grant colleges are not rendering the services which their librarians think should be rendered in this field.

Although abstracting journals cover the many fields fairly well, especially so in pure and applied sciences, yet at times abstracts are very slow to appear. Often a year or two elapses before an article is abstracted and noted. If a reference librarian has sufficient familiarity with the subject matter to call to the attention of the research worker books and articles immediately upon publication, much aid can be rendered. Inasmuch as many of the land-grant institutions are concerned especially with the field of pure and applied science, it should be noted that reference librarians in general have not majored in science.

Data were collected by this survey to determine the extent to which members of the library staff were translating articles in foreign languages for members of the faculty. Nine librarians reported that they are doing such work. Twenty institutions considered translating a legitimate demand on the library. Whether

legitimate or not, there is no question that a knowledge of French and German by library assistants is an essential of satisfactory service to research workers in land-grant institutions.

Many commercial concerns have found the extensive employment of librarians in their research departments desirable. Much of the searching and abstracting of bibliographical material in these commercial firms is done by librarians. The du Pont Co. is spending for library services for its research departments more than $100,000 per year. Unless these services were commercially valuable, the money would not be so used. Libraries of educational institutions might well render part of the service now offered by libraries of many commercial corporations.

The special needs of research workers for adequate book collections and office facilities adjacent to the books are discussed under "Books" and "Buildings."

Service to Citizens of the State

Most State universities and colleges are not confining their instructional activities to registered students. Extension services have been organized, especially by land-grant institutions, to extend educational opportunities to those living in rural communities. Many living in rural communities consider the State college as the institution which can assist them, not only in practical methods of agriculture but also in satisfying their other educational desires.

A slogan in extension, "If you can not come to the college, the college will come to you," has been applied also to library service in various ways. Some State universities and colleges have recognized the opportunity. The services vary in different States. In some institutions, such as the University of Wisconsin and the University of Michigan, collections have been formed to meet special needs. These collections consist in part of "package libraries"—collection pamphlets, articles clipped from periodicals, and similar material arranged under subjects and sent out in "parcels" or bundles to debating clubs, women's clubs, and individuals. The material comprises a wide range of subjects, from debating material on agricultural credits to articles on the Shakespearian stage. Collections of plays for the country theater are loaned to encourage this growing form of entertainment and instruction. Books are loaned not only to debaters, but also to correspondence students, to industrial firms, and to individuals who are pursuing special courses of reading. These forms of loans may overlap. One inquirer may receive better service through the loan of a "package library," another by the loan of books, a third by the loan of both.

Institutions conduct this service through different agencies. In the University of Michigan the university library has charge of the

loan of package libraries. In the University of Wisconsin it is the extension service. In the University of North Carolina there is joint control by the extension service and the library. Is this service a proper function of the college library or of the extension service? The general extension and the agricultural extension services are in close touch with local conditions throughout the State. On the other hand, the library has the books and the expert knowledge of available material. Both agencies should be used in cooperation, as is at present the case at the University of North Carolina. The organization of the library extension service under the joint control of the extension service and the library would utilize the familiarity of the extension service with local conditions and the librarian's knowledge of the book collections.

In many States, however, the library commission or State library has an extension department which frequently provides reading matter of popular interest to individuals throughout the State. In such cases there should be a definite understanding between the college and other agencies. Irrespective, however, of the activities of State departments, the land-grant college library has a special opportunity in rendering library service outside the campus which can not be as well performed by any other agency. In many States the State university or State college library is the only library in the State which contains considerable collections in certain fields such as engineering and agriculture; and in all States it should be the outstanding library in these fields. Furthermore, there are specialists available at these institutions who can aid and advise in the selection of the most useful books for any special technical problem. Industrial firms through their research departments, as well as many individuals, can benefit greatly if given access to large collections.

In many States, where other agencies are not functioning, libraries of land-grant institutions can render a decided service to citizens beyond the campus by the loan of the more general reading material, such as plays, collections for debaters, etc. In all States they have an opportunity to provide the more scientific and technical publications which may be of great service to the individual in his personal study as well as to corporations which are developing the resources of the State.

Service as Seen by Faculty, Librarians, and This Survey

What the faculty says.—Through the questionnaire used for this portion of the land-grant college survey, inquiries were directed to selected members of the faculties to ascertain the chief difficulties in the use of the library by them and by their students. The replies, together with the opinions of the librarians, are given in Table 2.

The results are not in complete accord with popular opinion, although they are generally consistent with the facts reported in other portions of the survey. The greatest number of complaints (492) is in regard to unsatisfactory book collections. The next highest (312) has to do with the library building; 231 stated that the library staff was insufficient in numbers, and 77 spoke of the need of greater educational qualifications for the library staff; 180 complained of the loss in use of material because of the considerable length of time that books and periodicals are withdrawn from the shelf for bindery. This last point is one that librarians minimized.

It is commonly supposed that faculty members generally would like to see greater decentralization of books, although not necessarily greater decentralization of administration. The returns did not sustain this opinion. Sixty-two reported that the book collections were overcentralized; 94 reported that there was too much decentralization. This subject is discussed later under "Control."

TABLE 2.—*Opinions by members of faculty and research staffs of difficulties in use of library*

Department	Book collections inadequate	Building inadequate	Insufficient library staff	Too much delay at bindery	Too much decentralization of books	Books can not be found	Inadequate educational qualifications of library staff	Department library not open enough hours	Too much centralization of books	Books can not leave library	Central library not open enough hours	Slowness in delivery of books
1	2	3	4	5	6	7	8	9	10	11	12	13
THE INSTRUCTING STAFF												
Agronomy	24	14	10	8	9	5	3	7	2	5	2	2
Bacteriology	29	12	9	11	8	5	5	3	5	4	4	5
Chemistry	25	11	11	12	4	6	2	5	7	2	3	0
Civil engineering	24	14	9	7	1	3	3	5	5	2	1	1
Economics	26	18	13	8	4	5	5	1	2	1	5	2
English	28	20	17	7	3	3	6	2	3	3	5	1
History	27	16	12	10	2	3	6	1	4	2	3	0
Home economics nutrition	18	13	10	7	2	2	1	4	2	0	4	3
Home economics textiles	18	11	9	4	2	2	2	1	4	1	1	1
Psychology	26	15	14	7	2	7	0	2	3	1	4	1
Rural education	13	12	8	6	1	2	2	0	0	1	1	0
Total of faculty	258	156	132	87	38	43	35	31	37	22	33	15
THE RESEARCH STAFF												
Agronomy	21	16	7	7	9	5	4	5	1	3	0	2
Animal nutrition	17	11	7	8	5	2	4	2	1	1	0	2
Bacteriology	20	14	8	9	8	4	4	2	4	5	2	1
Chemistry	18	11	9	10	3	3	6	1	4	3	4	1
Civil engineering	17	11	7	8	2	1	3	4	5	2	1	2
Dairy	21	11	6	5	7	3	2	3	0	0	0	1
Economics	22	18	11	11	3	6	3	2	2	2	1	1
Education	21	15	9	6	2	4	2	2	1	0	1	1
Entomology	23	12	15	9	3	5	6	2	2	2	1	1
Home economics nutrition	18	13	7	10	5	5	4	3	2	1	3	0
Plant pathology	23	15	10	7	7	4	3	3	3	0	3	0
Rural education	13	9	3	3	2	4	1	0	0	0	0	1
Total of research staff	234	156	99	93	56	46	42	29	25	19	16	13
Total of both faculty and research staffs	492	312	231	180	94	89	77	60	62	41	49	28
Opinions of librarians	17	14	16	5	7	0	3	10	1	1	2	1

What the librarians say.—Librarians who submitted their opinions generally agreed with the faculty that the greatest need of the libraries was concerned with books. The librarians, however, probably from more intimate knowledge, placed the need for additional members of the library staff ahead of the building needs. They did not emphasize need of higher educational qualifications for members of the library staff, possibly because the need for these increased qualifications was not so obvious to them as to faculty members.

Comparison of faculty opinion with data collected in this survey.—The data collected in other portions of this survey justify the conclusions expressed by members of the faculty, with one exception. The need for a stronger library staff both in numbers and in educational qualifications, appears much greater than the emphasis given it by faculty members or by librarians. It is possible that neither faculty nor librarians are altogether aware of the services which could be rendered by an efficient staff, while they are fully cognizant of the more apparent but not more necessary needs for books and buildings. These various needs are considered under their respective headings in following chapters.

Lack of Information Concerning Use of Libraries

The outstanding characteristic of this study of the use of books is that few facts and almost no accurate statistics on the use of libraries from the standpoint of those who use them are available or obtainable. The same lack is noted in other surveys and in professional literature. Much of the desired information does not fall within the field of librarianship. Accurate fact-finding studies on the instructional value of reading and the exact relationship of the wide use of books to educational objectives, would be invaluable in an attempt to evaluate the service rendered by libraries. What progress, for example, is made by freshmen in required English through use of a textbook and writing of themes, as compared with progress through a combination of wide reading of standard literature and theme writing? Librarians should know, however, the demands made upon them, the growth in demands, failures to meet demands, and the causes of these failures.

The conscientious attention which librarians as a class gave to the questionnaire in this survey speaks well for their professional spirit. Almost without exception they spent many hours in attempting to supply the information sought. Their failures were due to the fact that much of the information requested was not in existence.

Fourteen librarians did not know how many volumes were loaned during the preceding year. Some of those who did report "number of loans, excluding overnight," reported exactly the same figures to the American Library Association as including overnight. According

to Dr. D. A. Robertson, "The circulation statistics ought to be available, if they are not; the fact is significant."[22] Twenty-two librarians did not know how many volumes were loaned to other institutions. Twenty institutions did not know the number of volumes they borrowed from other institutions, although such borrowings are a direct guide to the book needs of their own libraries. One librarian replied, "Staff too small to keep statistics." Only 14 librarians could report the length of time periodicals were away from the shelves for binding, although delays at the bindery were noted by 180 (out of 500) faculty members as being a hindrance to their use of the library. The University of California and a few other institutions keep a close check on the length of time publications are unavailable on account of binding, but many librarians, in some cases where the complaints of the faculty were the most numerous, did not know how long binding required, and did not regard statistics on this subject as of any importance. The attitude of some librarians was expressed by one who stated in his reply to the questionnaire that such studies were "too trivial," and their object only "to satisfy curiosity."

Few librarians are able to give, for any appreciable length of time, the percentage of requests for books and information which are not met, with an analysis of the reasons for failures. No case studies of individuals who leave the library without obtaining the material they desire have been found in professional literature or elsewhere.

A lack of agreement as to terms is also noted. There is no agreement as to what is meant by "volume," "periodical," "serial." What does "number of volumes" mean? Does it include pamphlets placed in pasteboard covers? The lack of agreement as to terms should have had the attention of the American Library Association. There is need of careful consideration by some body of university librarians of the subject of the statistics which are significant and should be carefully kept.

Actual figures of delays in binding and ordering of books may well show the need of more assistants or changes in methods or even changes in State laws. Statistics as to the number of interlibrary loans, both incoming and outgoing, the proportion of books not supplied at the loan desks, the growth in number of books loaned, the number of volumes discarded and the reasons, should have a marked influence on the administration of the library and be important factors in presenting data for a library budget. Yet comparatively few libraries kept such records, although all report carefully the number of volumes in the library. In many cases these statistics of "number of volumes in library" can have no significance, since all volumes discarded in past years are counted as still in the library.

[22] Robertson, D. A. The college library. Educational Record, 10: 18–19, January, 1929.

The great discrepancy among colleges in presenting data for this survey is noteworthy. The larger institutions where the data were more complicated were able to present much more satisfactory figures than the small colleges.

Possibly the great emphasis laid in the past on the "internal" work of libraries, the cataloguing, accessioning, and ordering, has overshadowed the study of the use of libraries. Possibly, the fact that most library school courses deal with methods of library routine may account to some extent for a lack of knowledge, and even occasionally a lack of interest in studies of a library from a user's standpoint.

Highway experts in progressive States know the traffic load on every main highway. They are studying the failures of pavements to withstand use. They count the cars and from their count determine the width of road, type of construction, and necessity of improvement. They are carefully estimating the future load and are planning construction to correspond.

Similar studies are needed by college and university libraries. What difficulties are found by students in the use of books? What proportion of publications requested by faculty members are not available at the time needed? How many requests for information from books are fully met, partially met, or not met at all? It is the duty of the library to know what service is not rendered. In case of failure to meet any request for books and information the library should be able to give a satisfactory reason. The burden of proof that requests are unreasonable is upon the library, not upon the inquirer.

In addition to these studies three definite means are afforded to librarians to see library service from the standpoint of the reader. They, as readers, can use other libraries where they are not known and note the difficulties. This method used by two librarians resulted in the rather searching question, "Is the service to readers in my library like this?"

A second method afforded to chief librarians is to schedule themselves for certain hours a day at the loan and reference desks. Even an hour a week at each desk will prove a revelation of the difficulties some individuals have in the use of libraries. Deficiencies in service actually seen are remedied more quickly than are the same difficulties when reported by assistants. Many an assistant at a loan desk has remarked, "I wish the librarian would work here a few minutes. There would be a change." This recommended method has also been tried successfully by some librarians.

A third method is to visit departmental seminar meetings or special classes of students and engage in a frank discussion of the failures of readers to obtain service. This method at one institution

resulted not only in improvements in the routine work of the library, but also in recommendations from instructional departments to university administrative officers for increased library appropriations.

Summary

Means of increasing usability of libraries.—(1) More attention to the individual inquirer. Abandonment of such phrases as, "Look it up in the catalogue," "We do not have the book," and "The book isn't in." The assumption by librarians that any failure to furnish material requires explanation, that the burden of proof is upon the library in case of failure in service or refusal of request.

(2) Adequate assistance in use of card catalogue.

(3) A provision that every freshman by the end of his first semester understands the use of bibliographic tools, the card catalogue, and the most important reference books.

(4) Active interest by faculty members in the use of books by their students. More consultations of faculty and library staff to improve instruction in connection with reading.

(5) Prompt messenger service to faculty.

(6) Libraries open not fewer than 14 hours a day and several hours on Sunday as use requires.

(7) The availability on open shelves of 10,000 volumes, including books for general reading. Display for one week of all new books for general reading.

(8) Skilled assistance to students, faculty, and research workers, in search for informational material.

(9) Liberal policy in use of library material by citizens of the State.

(10) Participation by chief librarian in work at loan desk and reference desk, if only for a few hours each week, in order to obtain direct contact with readers and first-hand information of failures in service.

(11) An occasional use by chief librarian of other libraries where he is not known in order to ascertain by actual experience the difficulties encountered in the use of a library.

Few, if any, libraries of land-grant institutions reach the ideal in service rendered. Many are failing in a majority of the items mentioned. It is obvious that the ideals of the library service which have been outlined in this section require ample provision for purchase of books and periodicals, an adequate building, and a sufficient library staff with special bibliographic and educational qualifications. The needs for these provisions are discussed in the three following chapters.

Chapter IV.—Books and Periodicals

False Standards

Quantity v. quality.—The inadequacy of book collections is noted by faculty members as the most important cause of difficulties in the use of libraries. For years administrators and librarians have emphasized in catalogues and publicity circulars the number of volumes in libraries. On the other hand, little emphasis, in print at least, has been given to such subjects as the type of book needed, the type purchased, methods of selection of books for university libraries, the relationship of books purchased to educational needs, and objective tests as to the use of material.

The North Central Association of Colleges and Secondary Schools requires a minimum of 8,000 "live, well-distributed" volumes. Any secondhand bookstore would be glad to furnish what might be called such a collection at 10 cents per volume. A search of old attics would doubtless yield a much larger number at much less cost. The addition of such material in the past has resulted in the swelling of collections to meet a mechanical standard, rather than an addition of usable books. The president of a small college remarked to one librarian, "We now have 10,000 volumes. We more than meet the demands of the North Central Association; we need to buy no more."

No fixed number of volumes is satisfactory as a standard. The number and type of books needed will vary as instruction and research in different institutions vary and, even within an institution, the books needed will change continually as new material is published. The actual number of volumes should have less weight than the adequacy of the collection to meet the need of every instructional course and every research project on the campus. The amount spent annually for additions of suitable material and the number of subscriptions for current periodicals are more significant than the number of books in the library.

A new standard has recently been emphasized by the proposed compilation of lists of "best books" which should presumably be purchased by all college libraries. It is clear that such lists, per se, will not provide a permanent, adequate solution of the problem of the selection of books for college libraries. Lists may be a guide as to whether the selection has or has not been well done in an

institution. They can aid selection but can not replace the initiative of the individual instructor and the librarian. Methods of teaching and use of supplementary reading matter will and should vary with different instructors as subject matter of courses varies in different types of institutions. One of the most important desiderata for the land-grant college is to develop and retain the interest and the initiative of the individual instructor. Reading lists may tend to deaden two of the most valuable features of American higher education—the individual characteristics of the American colleges and the deep interest of the instructors in their work. Standard lists of books to be purchased by all institutions, valuable as they may be as guides, are therefore dangerous if they are interpreted as offering an easy substitute for methods which will insure an adequate book collection for the specific programs of instruction and research conducted by individual institutions. Each institution should attempt to determine for itself the adequacy of its book collections rather than rely blindly upon lists or attempt to meet a standard based on number of volumes.

Selection of Books

The selection of suitable books for public libraries has received much deserved attention in professional literature. Practically no consideration has been given in printed literature to the question of methods for the selection of books for college libraries and the mutual relationship of instruction and library staffs to the purchase of books. The lack of material on this subject justifies the following extended discussion of (1) the faculty and book selection; (2) the librarian and book selection; (3) allotment of funds; and (4) summary of recommended methods.

The faculty and book selection.—If all instructors and all research workers are actively concerned with the availability in the college library of the published material in their fields, and if funds are available for the purchase of this material, the library collections will be adequate and will be kept alive. The process will be a continuing one. The initial recommendation for books and periodicals needed by students is a duty of the instructors responsible for the teaching. The instructor may be aided in his selection, but his interest in reading in his field can not be replaced.

Many departments in some of the larger institutions have appointed library representatives whose special duties are to see that the library meets adequately the needs of the department. This arrangement works well if it supplements and does not curtail the activities of other members of the department in recommending desirable purchases. Heads of departments should realize their

individual responsibility to stimulate the interest of their instructors in the publications in their fields and in the addition of these publications to the library.

Relation of librarian to selection of books.—The responsibility for the selection of suitable books for the library is not the concern of instructors alone. It is equally the duty of the librarian and of his assistants. It is apparent, however, that in many land-grant institutions neither the librarian nor library assistants are engaged as active agents in the selection of a majority of the books which go into the library. In 33 institutions librarians indicated that their only relation to book selection was to avoid purchase of duplicates. In at least 10 institutions library books were ordered by departments without any supervision whatsoever by librarians. Indeed, supervision by the librarian over selection of books has been considered by some librarians themselves as "dangerous," "a practice which would cause a vacancy in the position of librarian," etc. Mr. F. K. Walter, librarian of the University of Minnesota, states, "Librarians have little authority to control purchases or recommendations." [23]

Librarians and library staffs should know books and the library needs of those who use books. They are, or should be, familiar with the type of material as well as with the individual books most used by students. They should know in what fields books are insufficient to meet the demands and in what fields students are having the most difficulty in obtaining material. They should know the amount of duplication required, what books are always "out," what books in the assigned reading room are the most used, and what books are seldom called for. They should be able to encourage the instructor to familiarize himself with the literature on his subject. The librarian has a unique opportunity in this respect which should be, and has been in some instances, far-reaching in its influence upon the whole institution. He can increase the interest of faculty members by bringing to their attention new publications and announcements of new books, by book display, by discussions of recent publications at faculty or seminar meetings, and especially by personal conversations with instructors. Urging faculty members merely to send in lists of books is not a satisfactory substitute for the awakening of real interest in the individual instructor. On the other hand, the librarian should be able to act as a safeguard against the exceptional man who would buy wildly and indiscriminately every item listed. Usually, however, to every instructor who recommends unwisely, more than 10 can be found who do not recommend at all.

Librarians have valuable sources of information which are not available to the individual instructor. Every library receives lists

[23] Library Journal, 54: 617, July, 1929.

of new books and periodicals. Through the publisher's weekly, publisher's circular, experiment-station record, catalogues of second-hand books, and many other sources, the librarian can obtain information concerning books published and about to be published, which should be of value to the various instructors.

The objection has been made that the librarian is not qualified to take an active part in book selection. Such a statement unfortunately seems valid in many cases. The solution is, of course, either to educate the librarian so that he can make available the knowledge he should possess or to obtain a new librarian.

A few institutions require approval of book orders by a library committee. This method delays orders and was abolished at the University of Illinois and many other institutions 30 years ago. It can not be a satisfactory substitute for obligations that should rest upon the instructor and the librarian.

Allotment of book funds.—The lack of active interest on the part of many librarians in the selection of books may be due in part to the allotment to departments of a large proportion of the institutional book funds.

In 35 out of 48 institutions, funds are allotted to departments of instruction at the beginning of the financial year. These funds are usually considered as the particular perquisites of the departments, to be spent without question as the departments may desire. In only five institutions do librarians report that they exercise supervision (other than to avoid duplication) over recommendations of members of the faculty for purchases from allotted book funds.

It would be supposed that the institutions with book expenditures of from $50,000 to $150,000 would have more justification in the allotment to departments of their comparatively large amounts than would institutions with expenditures for books of less than $10,000. However, the converse holds in many cases. One institution which is spending $2,300 for books, etc., is allotting all of its funds; another with expenditures of $1,200 is allotting 85 per cent; a third with expenditures of $2,600 is allotting all except $400. Twenty-two institutions allot 50 per cent or more of the book funds to departments. On the other hand, one institution with book expenditures of $50,000 makes no allotments. The University of Wisconsin allots less than half, the University of California, about one-third, Iowa State College, none.

Allotments are defended as a means of insuring the systematic and coordinate distribution of the purchases of books among various departments. To this extent they are of value, although it might be possible to obtain the same results through accounting methods or by an apportionment of funds. Allotments may, and sometimes do, lead to a rush at the end of the year to "use up the allotment,"

with resulting decisions more hasty than sound. They result in nearly all cases in the shifting of all responsibility for selection from the librarian who is the one who should be primarily and directly responsible for the effectiveness of the library. The assumption is that an instructor's recommendation is sound, and fortunately such assumption holds in most cases. Unfortunately there exist exceptional individuals who are either not always sound in their judgment or not always unselfish in their recommendation of books. The purchase of a large number of books of special personal interest to only one instructor has been noted in some institutions which are notably lacking in books for students' use.

Another objection to the extensive allotment of book funds is the supposition that books bought from the allotment are the exclusive property of a department and are not accessible to members of other departments. With the present wide interlocking between various fields of knowledge, this supposition results in much unnecessary duplication. Plant physiologists need chemical journals; physical chemists use engineering journals. No longer are even the most technical journals used only by the specialists in the field covered.

With small book appropriations, the allotment to any one department is not sufficient to purchase expensive sets. One university which allotted practically all of its funds was notably lacking in such sets. With the interlocking of sciences, sets covering several fields of knowledge are likely to be neglected, as no one department wishes to use its funds for these sets. One institution which had collections above the average in certain fields of science was notably lacking in such scientific journals as the Proceedings of the Royal Society of London and the Comptes Rendus de l'Académie des Sciences. The departments could not agree as to which one was to pay for them.

The allotments of book funds may enable the librarian to withstand pressure for the purchase of more material for certain departments than the budget can stand or than can be purchased with due regard to other departments. On the other hand, a strong and able librarian will not need this artificial device; he will know the sections of the book collection which are the weakest and the departments in which the demands for books are the greatest. He will make his decision, not mechanically, but from a knowledge of facts.

Summary of recommended methods.—(1) The responsibility for the initial recommendations of books to be purchased falls primarily upon the individual instructor or research worker and the instructing or research department. They should be aided by lists, suggestions, book notices, and advice by the librarian and library staff. Every instructor and every head of a department should regard it as his

responsibility to see that the library possesses the basic books and subscribe to the basic periodicals in his field.

(2) The librarian, since he is responsible for the effectiveness of the library, should exercise final authority (subject to the limits of the budget) over book purchases and the proper distribution of book expenditures. If the validity of recommendations of books is questioned by him, the burden of proof that the book is not needed rests upon him. He is responsible for the failure of any department to build up the collections in its field in so far as he fails to call its neglect to the attention of the department. He should regard it as his special duty to work with the faculty to make the selection of library books effective.

(3) Book funds should be apportioned among various fields of knowledge rather than allotted to departments.

These methods are in satisfactory use at present in several of the larger universities, which according to the tests considered in the following sections possess exceptional book collection.

Present Status of Book Collections

The status of the book collections of land-grant institutions, as noted in data reported in this survey, is indicated by four different characteristics. These characteristics, which are considered in sequence, are (1) number of volumes added by purchase each year, (2) holdings of typical books, (3) number of subscriptions to current periodicals, and (4) holdings of certain scientific sets.

Number of volumes added by purchase.—Satisfactory book collections are acquired chiefly by purchases. Gifts may be a supplementary means of acquisition. Especially in the field of agriculture, much valuable material can be obtained without charge. Nevertheless, the chief dependence of a satisfactory collection, especially in the basic sciences and engineering, must be upon the volumes purchased.

The number of volumes added by purchase during the year is shown in Table 3. In four cases the additions annually amount to fewer than 525 volumes. A library can not meet the demands of adequate instruction with an addition of 500 purchased volumes a year for 30 departments and 50 instructors. If these purchases are distributed equally over the various departments, each department will have 17 new books each year. Certainly the book needs of any department, as for example, physics, chemistry, agronomy, and economics, can not be met by the annual addition of 17 volumes. While numbers have little significance, yet a certain minimum is necessary if the collections are to be kept up to date. This minimum obviously exceeds 500 volumes a year for any land-grant institution.

TABLE 3.—*Status of book collections, 1928*

Institution	Volumes added by purchase	English periodicals received	Foreign periodicals received	Paid subscriptions to periodicals	Number of complete sets of 21 fundamental scientific periodicals
1	2	3	4	5	6
Alabama Polytechnic Institute	1,349	150	35	165	1
University of Arizona	1,986	411	41	346	8
University of Arkansas	----	----	----	----	8
University of California	14,719	----	----	----	21
Colorado Agricultural College	2,194	----	----	195	4
Connecticut Agricultural College	517	241	6	192	1
University of Delaware	2,117	----	----	200	0
University of Florida	4,654	347	14	307	2
Georgia State College of Agriculture	122	250	----	85	2
University of Hawaii	1,341	409	61	420	5
University of Idaho	2,954	456	32	488	8
University of Illinois	25,930	----	----	----	21
Purdue University	2,935	963	50	663	13
Iowa State College	10,949	1,313	318	1,244	19
Kansas State Agricultural College	2,450	710	140	550	16
University of Kentucky	4,730	573	54	607	12
Louisiana State University	----	375	50	325	2
University of Maine	1,996	538	32	335	
University of Maryland	2,702	368	8	319	3
Massachusetts Agricultural College	2,496	600	50	320	15
Massachusetts Institute of Technology	3,595	672	293	665	11
Michigan State College	2,985	353	50	403	11
University of Minnesota	----	----	----	2,081	21
Mississippi Agricultural and Mechanical College	627	300	7	200	2
University of Missouri	----	----	----	1,305	18
Montana State College	1,313	233	9	219	8
University of Nebraska	17,643	----	----	----	19
University of Nevada	----	464	19	----	7
University of New Hampshire	3,317	506	25	325	16
Rutgers University	7,155	----	----	468	15
Cornell University	----	----	----	1,275	21
North Carolina State College	2,396	530	9	443	1
North Dakota Agricultural College	1,788	327	26	349	1
Ohio State University	10,950	1,858	598	1,952	19
Oklahoma Agricultural and Mechanical College	6,683	509	8	250	0
Oregon Agricultural College	5,743	1,025	73	838	13
Pennsylvania State College	----	575	59	361	14
Rhode Island State College	425	200	5	86	5
Clemson Agricultural College	410	160	2	162	4
South Dakota State College	1,234	260	10	210	7
University of Tennessee	----	685	110	----	17
Agricultural and Mechanical College of Texas	1,219	215	4	180	1
Agricultural College of Utah	1,553	195	8	203	4
University of Vermont	1,590	412	45	346	8
Virginia Agricultural and Mechanical College	2,393	211	3	184	10
State College of Washington	11,289	575	55	----	11
University of Wisconsin	----	----	----	----	21
University of Wyoming	----	615	28	518	8

Holdings of typical volumes.—Institutions were requested to show their holdings of some books which were regarded as essential. The returns, widely variable, show surprising deficiencies. Murray's Oxford Dictionary, referred to as the greatest dictionary ever published, is not in 13 land-grant college libraries, 3 of them universities with liberal arts colleges. Doctor Robertson states that if this

dictionary "is not in the library, both the library and the English department will require special investigation."[24] The Union list of serials, generally recognized as one of the most useful tools ever published for the professional librarian, is not found in 15 libraries. Of books for general reading, it has been noted in section 3 under General Reading of Students, that Fruit of the Family Tree is not in 8 land-grant college libraries. Trader Horn is not in 12. Microbe Hunters is not in 4.

Subscriptions to current periodicals.—In science, the dependence upon periodical literature is much greater than in the humanities. Many of the scientific investigations of the past are found only in journals or publications of learned scientific societies. It would seem to be impossible to teach the science, the engineering, the agriculture of to-day without a knowledge of the progress revealed only in periodic literature.

Table 3 gives the number of paid subscriptions to periodicals. Thirteen libraries are subscribing to fewer than 250 periodicals. The University of California takes 180 in psychology alone; the University of Minnesota subscribes to a total of 2,081.

Table 3 also gives the number of subscriptions to periodicals in foreign languages. The discovery of truth is not confined to the English-speaking nations; scientific data are not published solely in English. Eleven institutions are taking fewer than 10 periodicals in foreign languages. Compare this number with 293 in foreign languages received at Massachusetts Institute of Technology, 598 at Ohio State University, and 318 at Iowa State College. Many of these periodicals, such as the Berichte der Deutschen Chemischen Gesellschaft, are generally regarded as fundamental and necessary in advanced courses. Amherst College, Bryn Mawr, and Dartmouth, in the field of psychology alone, are taking more periodicals in foreign languages (21, 36, 52, respectively) than do 13 of the land-grant college libraries in all fields of knowledge. Many of the land-grant institutions do not make available to their students and faculties the latest studies in the sciences.

An attempt was made to ascertain how many libraries are taking a special list of 21 periodicals regarded by certain instructors as fundamental to their work. Many libraries, such as the Universities of Illinois, Rutgers, Minnesota, Wisconsin, California, Cornell University, and the State Colleges of Oregon and Iowa, were taking all, and in many cases duplicate copies of several on the list. Three libraries have annual subscriptions to less than half on the list; 19 had one-fourth or more lacking. One library was taking only 3 of the 21. More than one-half of the libraries do not take the much-

[24] Educational Record, 10: 12, January, 1929.

used Annales de l'Institut Pasteur. It is difficult to see how a department of chemistry in any land-grant institution can teach without the Journal of Biological Chemistry, but, apparently, it is done.

Holdings of scientific sets.—The need for periodical literature is not confined to current volumes. Much material is contained in the back files. An examination of the use made of these sets in any progressive scientific institution will justify the statement that bound volumes of these periodicals are in continual demand, not only by former and graduate students but also by students majoring in the subject.

Two separate studies were made to ascertain the holdings of scientific periodicals by the institutions included in this survey. The field of science was selected because in the type of institutions represented by the land-grant universities and colleges science pure and applied is of primary importance. It is impossible to conceive of a land-grant college or university which does not place major emphasis upon instruction and investigation in the scientific and technical fields of agriculture, engineering, and home economics. The holdings of land-grant institutions were checked to ascertain the extent to which they had complete sets of the 21 scientific periodicals regarded by some instructors as fundamental in their work. Five of the 46 institutions reported complete sets of all the 21 periodicals listed; 26 had less than half; and 15 had fewer than 5 of the 21. The results of the data reported in this survey are given in Table 3.

For a further determination of the holdings of scientific periodicals the list of the 28 most important chemical periodicals as given in Science, volume 66, page 389, was selected for checking, because chemistry is a fundamental science upon which agriculture and engineering are based. Chemistry should be one of the strongest departments in land-grant institutions. The list was published to indicate the chemical periodicals that are needed by a professor who wishes to keep himself and his students familiar with progress in this field. The list was compiled on the basis of a count of periodical citations in articles in American chemical journals. The validity of the list has apparently not been questioned.

For use in this survey the list was checked with the data given in the Union list of serials, which gives the holdings of 250 of the leading American libraries in so far as periodical and society publications are concenred. Of the 52 land-grant institutions studied, 20 are represented in the Union list; the checking was confined to these 20 institutions. The holdings of some of the leading American universities were also checked for purposes of comparison. Harvard was omitted, as its holdings are not completely reported in the Union

list. Libraries such as the Library of Congress and the New York Public Library, not connected with colleges and universities, were also omitted.

The holdings of these sets by the 20 land-grant institutions as compared with the holdings of leading American universities are reduced to a numerical basis and given in Table 4. Ten points were allowed for each complete set, 8 for three-fourths of a set, 6 for each one-half set, 4 for one-fourth set, 3 for current subscriptions and no bound volumes, and 1 point for less than one-fourth of a set without current subscriptions.

TABLE 4.—*Holdings by Certain University Libraries of Chemical Sets, Rated as Explained in Text*[1]

[The first 20 represent institutional libraries with the most complete holdings of any in the United States in so far as ascertained. The last 17 are chiefly land-grant institutions, but include a few other well-known universities. Many institutions whose holding would entitle them to be rated between twenty-one and thirty-seven on this list are omitted. All land-grant institutions are included.]

1. University of Illinois	278	20. University of Nebraska	252
2. Princeton University	278	21. Brown University	238
3. University of California	278	22. University of North Carolina	234
4. University of Wisconsin	276	23. University of Missouri	206
5. Cornell University	276	24. Dartmouth College	205
6. Columbia University	274	25. Northwestern University	181
7. Yale University	274	26. Amherst College	180
8. Leland Stanford Junior University	274	27. University of Oregon	179
9. University of Michigan	272	28. University of Tennessee	157
10. University of Minnesota	270	29. University of Arizona	147
11. University of Texas	269	30. Kansas State Agricultural College	147
12. John Hopkins University	268	31. Massachusetts Agricultural College	128
13. University of Washington	265	32. Oregon Agricultural College	120
14. Massachusetts Institute of Technology	262	33. University of New Hampshire	120
15. Ohio State University	262	34. University of Idaho	109
16. State University of Iowa	256	35. Land-grant university	88
17. University of Pennsylvania	254	36. Land-grant university	67
18. Iowa State College, Ames	252	37. Land-grant college	47
19. University of Chicago	252		

The first significant fact is that of the 250 American libraries whose holdings were considered to be of sufficient value to be given in the Union list, only 20 of the 52 land-grant institutions are included. Thirty-two institutions covered by this survey are not included. The supposition is, therefore, that only 20 of the land-grant institutions in their holdings of periodical publications can be ranked among the first 250 American libraries. These 20 are supposedly, by reason of the fact that they are represented in the Union list, among the stronger of the land-grant colleges in their holding of sets.

[1] Science: 66, 386–387. 1927.

Ten land-grant institutions had nearly complete sets of all the publications listed. Among 20 American universities with the most complete holdings of these chemical periodicals are found 9 land-grant institutions, the Universities of Illinois, California, Nebraska, Wisconsin, Minnesota, Cornell, and Ohio State, Massachusetts Institute of Technology, and Iowa State College—a most excellent showing. These institutions in their holdings of chemical journals are well equipped for the teaching of chemistry. Their faculties have the facilities to keep themselves informed of developments in this important field. Among some of the other 20 institutions included in the Union list conditions were much less satisfactory. Several of them had less than one-fourth of the volumes listed. Nine had less than half. If the statement in Science is correct that these periodicals are needed by faculty and students for instruction, only one-fifth of the land-grant college libraries are equipped to render the service needed.

Methods by which adequacy of its collections can be determined by each institution have been described in the preceding paragraphs. The more extensive use of these and similar methods is recommended. Another method of determination of book needs is to list all material requested by students and instructors and not supplied. One institution from a compilation by titles of all books borrowed from other libraries decides the most important titles to be purchased.

Summary.—The results of this study of four characteristics of the book collections of land-grant institutions agree to a remarkable extent in indicating the strength or weakness of individual libraries and justify definite conclusions. A college which has meager additions to its book collections also subscribes to few periodicals and has few complete files of scientific sets. More than three-fourths of the land-grant institutions do not possess book collections which are adequate for their needs. Ten institutions have fairly satisfactory collections. There is a wide gap between the leading 9 or 10 institutions and the remaining 42.

Loans From Other Libraries

Many institutions with insufficient book collections state that they rely on borrowing from other institutions. The data submitted do not justify this statement. It is in most cases the institutions which have the better collections that are borrowing the most. The number of books borrowed by the nine institutions which were shown to have exceptional collections as measured by the checking of the union list of serials averaged more than 200 a year. On the other hand, seven libraries whose collections are greatly inadequate borrowed an average of fewer than eight volumes per year. The institutions in

the most need are not borrowing to a large extent. Apparently in these institutions there is no great demand for books.

Borrowing, however, can not be regarded as a successful substitution for the possession of the most needed sets. An experiment can not wait until a publication is received from a distant kindly disposed university. The needs of professors and students can not always be met by the intermittent supply of desirable material after a delay of two or three weeks. With the development of research the demand for interlibrary loans in general has grown greatly. The practice of interlibrary borrowing will eventually break down by the mere fact that lending libraries can not meet the increasing demand without curtailing the service to their own faculties and students. This stage, however, has not been reached by most land-grant institutions. Faculty and students in such institutions are not using library books sufficiently to cause any great demand for interlibrary loans.

The many proposals in library literature to assign to different institutions the purchases of little-used sets are worthy of consideration by libraries which possess the basic material. The large majority of land-grant institutions do not yet possess this basic material and are not in a position to consider the cooperative purchase of less-used material.

There is one class of material in land-grant institutions which offers opportunity for improvement in use through interlibrary loans. Some institutions reported difficulties in obtaining as loans from other institutions manuscript copies of masters' and doctors' theses. Nine institutions will not loan such theses, thus limiting the use. Other institutions require the deposit of two copies, one of which is available for loan. The deposit in the library of two copies of every thesis would require little additional work and would make possible increased use both to the university's clientele and to students of other institutions.

If lists of these were published by each institution, or if some national agency would publish the titles of all theses in various special fields, these theses would be more widely known, the use increased, and duplication of research avoided.

Gifts

Gifts of books may be expensive. They require space; to be available they require cataloguing which averages, according to estimates, from 50 cents to $1 per volume. If gifts are unrestricted by the donor, and if the librarian can dispose by sale, exchange, or burning of the material not needed, these gifts will prove an asset instead of a liability. When the gift of a second set of the War of

the Rebellion to a small, poorly supported library of a few thousand volumes is hailed as a public benefaction, one is inclined to question. The University of Illinois added 47,515 volumes by purchase and 3,817 by gift or exchange—about 8 per cent. In contrast to Illinois, a smaller institution added 1,197 by purchase and 1,092 by gift; in another case, 413 volumes are added by gift and 238 by purchase. In these two institutions the quality of the book collection may be open to question. The library has been in some cases used as a place of interment not only for unemployed individuals, but also for useless books from some friend who must not be offended.

Many libraries, especially in the East and South, have been benefited—or in some cases injured—by the gift of large collections of books, the libraries of deceased clergymen, plantation libraries, and other collections. Such gifts customarily were incorporated bodily into the college libraries. There might be some reason for the largest libraries to collect the various sermons preached on divers occasions in a certain State; certainly the finances of the average land-grant college library do not justify holding this little-used material. Many libraries can reduce the number of volumes on their shelves very greatly with a corresponding increase in efficiency of service.

It is recommended (*a*) that gifts be as a general rule not accepted unless made unconditionally, and (*b*) that gifts so made be rigidly examined as to their future usefulness before being catalogued and placed in the library.

Books Withdrawn or Discarded

Books, if used, wear out. They also become out of date. Several duplicate copies of Who's Who in America or American Men of Science, may be needed when the new editions first appear. It does not follow that all duplicate volumes are needed as a permanent accession, to be retained after their usefulness is ended. Furthermore, other material not duplicated may become antiquated and seldom used in the average land-grant institution, since such material is replaced by new editions or by publication of results of later investigations. This fact holds true especially in the fields of pure and applied science.

Some large institutions should collect widely, and hold exhaustively, material even of secondary value. Most of the land-grant colleges, however, do not need to hold little-used material to this extent. Material very rarely needed can be borrowed.

A study of the reported number of volumes withdrawn raises several questions. The University of Illinois reports 525 withdrawn during the past two years; Iowa State College, 2,000; Mississippi Agricultural and Mechanical College, 918 in 1927; Louisiana State

University, 3,964 for 1928; and Massachusetts Institute of Technology, 575. Only 14 institutions out of 48, however, report more than 100 volumes discarded in one year. Sixteen do not report any number of volumes withdrawn, in many cases stating that no record is kept. One institution makes the pathetic report of very few volumes discarded and many worn out but still in use. With the addition to this library of 363 volumes last year, the worn-out volumes could not be replaced and must still remain in service.

In some cases where no records are available of books discarded, the question arises as to whether the records of the library are kept up to date. Certainly no library is entirely free from book losses. If these losses are not noted in the catalogue, the loan desk is compelled to report to readers that certain titles can not be found, and that no record is available.

It is recommended (*a*) that care be exercised to withdraw useless material from the library collections, and (*b*) that more attention be given to withdrawals of missing or lost books from the records of the library with simple statistics as to the cause of withdrawal, such as "out of date," "lost and paid for," "missing," etc.

Exchanges

All land-grant institutions are issuing from time to time publications of value not only to their institutions but also to the faculties and students of other colleges. The publications of a college offer a valuable means by which important publications of other institutions can be obtained if a system of exchanges is ably organized and administered. The means of distribution of these publications, however, is in many cases unorganized and unsatisfactory. Every librarian who handles serial publications is familiar with the difficulties of obtaining current issues regularly and promptly. Often faculty and students are deprived temporarily or permanently of the use of much valuable material through a lack of a satisfactory exchange system.

In many cases, publications are mailed to libraries from a dozen or more different offices on a campus. A request to one office is referred to a second and then to a third, if it is not lost in the meantime. Some offices do not maintain a mailing list. Fifteen libraries reported that they do not receive copies of all publications issued by their own institutions. Others state that they obtain these publications only as a result of "eternal vigilance." One librarian denied vehemently that a certain publication was ever issued by his university, although the publication in question was so issued some years earlier. Many institutions do not have anywhere on the campus

copies of publications appearing in former years. One librarian stated that "The library of this institution is the last office to be considered when publications of this institution are distributed."

Requests to other institutions for their publications often meet the stereotyped reply, "A copy was mailed to Professor ———, of your institution." Reference to the professor usually brings the statement that the publication in question is regarded as his own personal property. Service to one individual in this instance is at the expense of the many.

The universities of Minnesota and Illinois have met difficult conditions with great satisfaction to other institutions by the organization of exchange departments with a professional library assistant in charge. If every library would regard itself as obligated to see that exchanges were mailed out to other libraries, this arrangement would correct the difficulty. If the librarian is so to act, he must be given authority and some measure of control by the administrators of the college.

The handling of incoming publications is in some institutions not any more satisfactory, however, than that of distribution. In typical cases incoming publications are received by the dean of agriculture or the station director and referred by him to various members of the experiment station staff. Eventually, they are supposed to find their way to the library. Actually, the publications seldom reach their destination; none of the students and only few of the faculty have the opportunity to use or to examine them. In other cases the publications are retained in the director's office, either inaccessible or easily lost.

The conclusions from an examination of the methods used at most universities, colleges, and experiment stations in regard to exchanges of publications suggest a real need for careful consideration of reorganization of the collection and distribution of these publications.

It is recommended (*a*) that the librarian of the college be held directly responsible for the satisfactory exchange with other institutions of available publications of his institution, including the publications of the experiment stations, and that he be given authority and necessary assistance for this duty; (*b*) that incoming publications be forwarded to the librarian immediately upon receipt, with notes, when desired, that such publications be loaned to certain members of the faculty; (*c*) that a mailing list of libraries on the exchange list be maintained; (*d*) that every issuing department on the campus be required to deposit two copies of all publications in the college library and that the rule be enforced; (*e*) that a reserve stock of publications of value for exchange purposes be placed in the library.

Duplicates

What shall be done with material, usually duplicates, not needed in one library but which might be of value elsewhere? Many valuable duplicate numbers are being received at times by many institutions which might be of much use in other colleges. The Societa chimica di Roma is reported to have sold, as old paper, duplicate copies of its own publication, La Gazzetta chimica Italiana. Libraries are now willing to pay $1,000 each for a complete set of the scientific reports of this society. No satisfactory clearing house for duplicate material has been organized, although proposed many times. In many cases the holding of duplicates by an individual library is expensive and not to be recommended. The union list of serials will furnish information as to the need of nongovernmental periodicals in certain institutions. Unfortunately, only 20 of the land-grant institutions are represented in this union list.

It would be of material advantage to the land-grant colleges not in the list if a union list of their holdings could be published. This list would enable other institutions to discover at once what their sister institutions need. In many cases such needs could be supplied without charge.

The Superintendent of Documents has been willing to accept the return of Government publications and automatically acts as a clearing house for duplicates of such publications. If space permitted, the United States Department of Agriculture might perform a useful service by acting as a clearing house for agricultural literature, especially bulletins of the various experiment stations. It is of course possible to return experiment station bulletins to the office issuing these publications. However, the return may mean that these publications will later be distributed to individuals and that copies for libraries may be as unavailable in the future as in the past. A clearing house in the United States Department of Agriculture would make this material available for permanent preservation in libraries. It is possible that eventually some commercial house may be willing to act as a clearing house for scientific and technical periodicals. Many libraries have disposed of periodicals, bound and unbound, to the H. W. Wilson Co., receiving not only a cash payment, but also the assurance that this material would be transferred later to a library for permanent use.

It is recommended (1) that as a general policy duplicates of no value to the library be immediately destroyed or otherwise disposed of; (2) that Government documents not needed be returned to the Superintendent of Documents; (3) that land-grant colleges arrange some cooperative means of exchange of experiment station bulletins and the publication of union lists or want lists of material desired.

Summary of Books and Periodicals

(1) More attention by individual institutions should be given to the determination of the adequacy of book collections to meet the instructional and research needs of an institution. Reliance should not be placed upon any fixed mechanical standard of number of volumes or lists of best books.

(2) Instructors should be responsible for the initial recommendation of books for their students and for their research work. The final responsibility should be the duty of the librarian.

(3) The book and periodical collections of a large majority of land-grant institutions are not adequate for instructional work in these institutions. A few land-grant institutions have exceptionally strong collections, ranking among the best of American universities. Improvements of the book collections require not only satisfactory methods of selection, as noted above, but also adequate financial support.

(4) Gifts should be accepted only if needed. Books not needed, whether duplicates or otherwise, should be immediately disposed of and not allowed to accumulate. A clearing house for the transfer of duplicates to institutions needing them would be of value. An exchange department under the control of the library for the publications of each college is recommended.

Chapter V.—Buildings

In the presentation of difficulties in the use of libraries, the inadequacy of library buildings, in the opinion of faculty members, ranks next to deficiencies of book collections. The rapid changes and increase in services required of libraries at many institutions during the past 10 years are well indicated by the complaints as to inadequate buildings and by the demands for more adequate quarters for the housing of libraries. Fifteen land-grant institutions have erected new buildings for their libraries during the past six years (1923–1929). At least 10 institutions are now planning either new buildings or extensions of buildings already in use.

Desirable and Objectionable Features

The inadequacy of buildings erected before 1915 and some objectionable features in buildings erected since that date are noteworthy. The objection that applies almost universally to older buildings is the difficulty or impossibility of enlargement. Twenty-eight institutions out of forty-eight, nearly all with buildings erected before 1920, reported that their library buildings could not be easily enlarged. Book collections have been increasing steadily and will continue to increase. The use of the library by the individual student has also showed a marked increase in the well-equipped libraries and probably has not yet reached its maximum in any institution.

Even concerning the buildings erected during the last few years, reports are made of "inadequate space for bookstacks," "inadequate office and administrative space," and "stack and readers capacity exhausted four years after erection." The conclusion is sound that in the future no plans for a library building should be made without definite provision for later enlargement both for stack capacity and for additional space for readers. The mere assumption that the building can be enlarged is not satisfactory. Sketches should be prepared to show exactly how additions can be built. This plan if adopted in the past would have saved heavy expenditures.

The difficulties reported in the use of library buildings recently erected show great variations. Rooms are not planned for adequate economical supervision or for ease of use by students. The incon-

venient relation of rooms to each other, to the loan desk, and to the public catalogue causes loss of time and confusion. More general were the complaints of a lack of quiet necessary for study. Marble floors cause unnecessary noise; poor arrangements of halls cause confusion. There are complaints that classrooms and lecture halls in the library building tend to increase noise. The undisturbed use of books is so important that no other factor should be allowed to interfere with the primary purpose of the library building. If classrooms are to be placed in the library building, they should have a separate entrance or be placed near the main door, as far as possible from the reading and service rooms.

Architects have given generally more attention to architectural features than to use. It is known that in some buildings which later presented difficulties in use the advice of competent librarians was not obtained or was not followed. The necessity of a constant reminder of the primary object of a library building is well stated by Klauder and Wise: "Buildings erected as enduring monuments at some of the larger institutions have soon been found so inadequate that drastic remedies must be applied, and it would be easy to point to a number of conspicuous library buildings erected from 15 to 25 years ago which it is already proposed to rebuild * * * The problems of the public library differ essentially from those of the institutional library. In the former the emphasis is upon circulation; in the latter upon study. The character of the books, the character of the persons using the library (requiring less oversight), the additional space per reader needed at the tables (study requiring more table space than mere reading), the open-shelf demands, and the need of segregating books on a given subject for students in seminar rooms or elsewhere are but a few of the conditions distinguishing a college library. Ever present in planning a library is the problem of housing books, but even more vital is that of facilitating their use." [25]

Ratio of Seats to Students

Formerly it was estimated that seats for 10 per cent of the student enrollment would be satisfactory. From the reports presented in this survey, this estimate no longer holds in institutions where the libraries are really functioning in instructional work, Oregon Agricultural College, with 488 seats for 3,800 students, reports that its seating capacity is at certain hours fully utilized. Kansas State Agricultural College in its new building allows 628 seats for 3,300 students, seats for practically one-fifth of the student enrollment.

[25] Klauder and Wise. College architecture in America, 1929, ch. 5, Libraries, p. 70.

North Carolina State College of Agriculture and Engineering has 258 seats in its main reading room and a student enrollment of 1,428, approximately 17 per cent. It should be remembered that the above figures do not include seminar rooms or seats in departmental libraries. The number of seats needed in the main reading room of the library will be affected considerably by the number of libraries outside the building. Libraries with seats for 15 per cent of the student enrollment may prove inadequate; 20 per cent would be none too high a standard. Klauder and Wise quote various authorities as recommending from 20 per cent to 33 per cent.[26]

Square Feet Per Reader

The amount of floor space per seat varies greatly. Long tables can be used and tables and chairs placed close together, although such an arrangement is not conducive to quiet or to ease in the use of books. The newer buildings have allowed not less than 20 square feet per reader. The University of Minnesota allows 24 square feet per reader; the University of Illinois, 26.

Upon the basis of these tentative objective standards it is found that practically all library buildings at land-grant institutions erected before 1920 and some of the buildings erected since that time are inadequate.

Special Rooms for Private or Group Study

Additional seats for students are obtained by the establishment of group or departmental libraries outside of the library building or by the arrangement of seminar rooms within the building. Seminar rooms with permanent collections have been found troublesome in some institutions when funds are not available for employment of supervising assistants. Special rooms are needed for temporary assignment to professors and to research workers for their use in connection with books and to debating and other classes who use intensively a considerable amount of library material. In order buildings complaints of lack of small rooms for group study and also lack of carrels or cubicles in the stacks were general. "Few of our university libraries * * * are planned with any proper provision for isolation and with conveniences for continuous study.[27]

Equipment

Although no special study was made of library equipment in this survey, certain information was supplied which would justify the

[26] Op. cit., pp. 78–79.

[27] Ogg, F. A. Research in the humanistic and social sciences, 1928, p. 365.

conclusion that in many cases unsatisfactory and even unusable equipment has been purchased. Either a competent librarian was not consulted or his advice not followed. One institution attempted to save by the insertion of the card catalogue underneath the loan desk; the location was not conducive to use of the catalogue, and as a result this card catalogue was never used. Thin-legged chairs, easily broken, are an expensive luxury, as are loan desks which are too high or too low or poorly arranged for effective use. Many a library basement is the burial place of much unsuitable library furniture. Standard library equipment can be obtained from a number of well-known firms. Suitable library furniture may be higher in its original cost but will be less expensive eventually than substitutions by the local carpenter.

Library supply houses are usually well qualified to give advice in regard to equipment. A study of the satisfactory and unsatisfactory equipment in the more recently erected libraries should be of aid, but no plan should be slavishly copied. A loan desk excellently arranged for the return of books at the east end and requests for books at the west end utterly failed when placed in a library with the entrance on the west and the catalogue on the east.

Many, if not all, of the difficulties in the use of library equipment would be avoided if the advice of a competent librarian had been followed.

Summary

In the reports of many land-grant institutions note was made of the fact that a new library building would be the next building to be erected. Some institutions, however, with the poorest library accommodations do not seem to have given any consideration to the need for an adequate building. There were several that did not supply one seat for 20 students as compared with seats for 15 per cent or 20 per cent of the student enrollment as noted in the newer buildings. Many institutions seem content with poor service in so far as their library buildings are concerned.

It is recommended that administrators planning new buildings study the objectionable features of buildings erected in the past 10 years and that careful attention be given to the use, which is the main purpose for which library buildings are erected. It is also recommended that no library building be erected unless the final plans have received the approval of a competent college or university librarian who has had experience in planning and building a library. Similar advice in regard to equipment should be obtained. It is possible for any institution to check its library building with the

following requirements, which are recommended especially for the consideration of those planning new buildings:

(1) Possibility of easy enlargement of building without heavy expense for tearing down walls.

(2) Seating capacity in central library for 20 per cent of student body; 25 per cent if no or few department libraries.

(3) Floor space at least 20 square feet per seat; 25 would be preferable. Exclude shelving space.

(4) Arrangement of rooms with card catalogue near loan desk, reference room, and catalogue workroom.

(5) Arrangement of rooms and exits for satisfactory supervision; desks near doors and centrally located.

(6) Arrangement for easy access to books; 10,000 volumes at least on open shelves. Carrels in stacks. At least two or three small rooms for every group of 40 on the faculty, for private study, etc.

(7) Corridors arranged for service, not for show. Floors that will be conducive to quiet.

(8) Adequate stack capacity for at least 15 years without the need of additions. Figure eight books to a running foot of shelving; deduct one-fifth for "working capacity."

(9) Adequate lighting and ventilation. Plan before building is started. Consult experts.

(10) Adequate equipment. Allow for it. It will be expensive.

(11) No lecture halls or classrooms in the building except near entrance and remote from reading rooms. A special entrance is desirable, if possible.

Chapter VI.—Administrative Control

The relationships of the librarian, both to the administrative offices and to those employed in the libraries, are primarily problems of personnel. It is desirable, however, to consider these important questions independently and prior to consideration of qualifications and salaries, which are affected by the authority given the librarian.

The lack of control by many librarians in land-grant institutions over the selection of books was noted in the discussion of that subject. Allusion was also made to the control over book selection exercised by the library committee. The general subject of control over and by the librarian is much broader than the special question of book selection. If there is no administrative officer in charge to whom the librarian can go for final unbiased decisions on many subjects, the service may become disorganized by the conflicting claims, policies, and rivalries of various departments. Inasmuch as a library committee with certain administrative powers is not uncommon, the relationship of this committee to the library administration must be considered.

In direct relationship to the control over the library exercised by administrative officers is the control exercised by the librarian. Poor but expensive service is likely to develop when the librarian has no control over separate libraries on the campus and over the funds expended for maintenance of these libraries. Under control by the librarian arises the question of who should be responsible for the administration of departmental or school libraries. The question of control is divided conveniently into two sections: (*a*) Control by the administration, including duties of a library committee; and (*b*) control by the librarian, including the question of departmental or group libraries.

Control by Administrative Officers

The library is of importance to every instructional department, to every experiment station, to every instructor and research worker. It is not limited to any special college or division or to any selected group of departments. It is a necessary and important laboratory for every phase of work conducted by an institution.

Most of the land-grant colleges have wisely recognized this fact by placing the library directly under the administrative control of the president. Out of a total of 48 reporting institutions 39 have direct presidential control. In 6 colleges the librarian reports to and is under the direction of a library committee, and in 3 cases he reports to a dean.

A dean represents ordinarily only certain limited phases of the work of an institution. A library committee, unless it is so large as to be unwieldy, also is limited in its membership to certain fields. The president of the institution is not so limited. Unless exceptional circumstances prevail, direct control by the president, without the intervention of a library committee or a dean, is the more desirable form of organization. It is supposed that the president understands the necessary relationship between library service and good instruction and will employ and depend upon the services of a thoroughly competent librarian.

Duties of a library committee.—What are the functions of a library committee? Is there any real need for such a committee? Most universities and colleges recognize the need but disagree as to the functions. Only 7 out of 48 institutions report no such committee. In 26 institutions the committee acts in an advisory capacity, generally on matters referred to it by the president or the librarian. In 20 cases it makes allotments to departments for the purchase of books; in 10 cases it approves recommendations before books are purchased. In a few cases it approves recommendations for the appointment of library assistants.

It is apparent that a successful library requires the services of a capable librarian to whom authority is given. If authority to decide administrative details is given to a committee, divided responsibility will result. In all effective libraries of land-grant institutions the library committee acts only in an advisory capacity. The administration of a library in whole or in part by a library committee is not recommended as conducive to good service. This positive statement is made with the proviso that the librarian is qualified to fill his position. If he is not, one who is should be selected.

A library committee, however, has some functions. It can serve as a link between the library and the instructional staff. The work of the library is necessarily closely interwoven with teaching, but the library staff may not be familiar with the educational policies of the various departments. A library committee, meeting with the librarian, can coordinate the work of the library with that of the instructional faculty. There will be in all probability changes in the future, in instructional method as well as in content of courses, which will affect the functioning of the library and which should have the mutual consideration of members of the instructing and library staffs.

As a library develops many questions of general policy demand attention from various viewpoints. How important is the collecting of art material as compared with books in other fields? In what fields should the institution collect extensively; and in what fields should such extensive collecting be left to neighboring institutions?

A library committee can aid in the use of books by reporting to the faculty the possibilities and limitations in the use of libraries. The committee, by reports to the faculty, can stimulate interest in books and recommendations for purchase.

In a small institution such a committee should be fairly representative of all the departments of the institution. In the larger universities all the colleges or divisions should be included. The librarian, of course, as is the case in 33 of the 41 institutions which report library committees, should be a member of the committee. Several of the larger universities have not only general library committees but also special library committees for the various colleges or divisions, acting in an advisory capacity chiefly in regard to the selection of books for purchase.

It is recommended (*a*) that the president exercise control over the library without any intermediary; (*b*) that a library committee representing all phases of campus activities meet at regular intervals to discuss interrelations between instruction and research and library service, and to discuss matters of general policy, including book selection; and (*c*) that the committee act in an exclusively advisory capacity and refrain from consideration of administrative matters, such as decisions in regard to purchase of individual books and recommendations as to appointment of library assistants.

Many of the land-grant institutions are administering their libraries in accordance with the foregoing recommendations. There is much more variation in the fixation of responsibility in the librarian and in the control exercised by him.

Control by the Librarian

Among universities and colleges in general there is great variation in the authority given the librarian. In few cases is he directly responsible for all the library-book purchases, the selection of all library assistants, the location of books where they will be most useful, and the general administration of all the libraries of the institution. One of the largest American universities has written into its catalogue the following statement:

> There shall be a director of university libraries, appointed by the trustees, who shall be the general executive officer, in subordination to the president, of all libraries under the control of the university. * * * The librarian * * * shall have immediate charge of the expenditure of all moneys appropriated by the trustees for the purchase of books and supplies therefor;

* * * he shall appoint all needed assistants and subordinate officers and fix their titles, duties, and compensations, provided that the total amount shall not exceed the appropriation of the trustees for that purpose * * *. All books, maps, charts, and other printed matter (except laboratory manuals) shall be deemed a part of the library, and shall be stamped and catalogued as such. Such books and other material shall be purchased by the librarian.

There shall be a library council, of which the president shall be chairman and the director of university libraries, secretary, composed of not to exceed 15 officers designated by the trustees. It shall be the duty of the library council to consider the plans and policies recommended by the administrative officers and to advise with them in regard to the administration of the library.

No such authority is given the librarians in most of the land-grant institutions. In 22 of the 48 reporting land-grant institutions departments generally may buy books for library use independently of the library and in most cases without even the librarian's knowledge. In 10 cases in which departments forward their book requests to the library, the requests must be passed on again by a committee. In only 16 institutions is the responsibility for book purchases placed upon the librarians. In about one-half of the institutions the librarian can not transfer permanently books between departmental libraries, and in 9 of the institutions he can not transfer from departmental libraries, even for temporary use, books needed elsewhere. In many colleges the assistants in charge of various departmental libraries are independent of the librarian of the college. In 25 out of 48 land-grant institutions separate libraries are administered independently of the central libraries. In 15 of these institutions the books in these separate libraries are not entered in the catalogue of the main library. This failure means that there is no place on the campus where an instructor or student can find listed all the library books belonging to the university. To ascertain definitely that a certain book is not available in the libraries of the universities he would be obliged to consult each separate library. Of the remaining 33 institutions several have small libraries, apparently hidden in professors' offices, closed in the evening and in many cases equally inaccessible during the day.

Most of the colleges and universities with library expenditures ranging from $50,000 to $300,000 have placed full responsibility upon the librarian as the head of all the libraries on the campus. In only one of the six institutions with library expenditures in excess of $80,000 do departments buy library books, independently of the library. In five of the six institutions with library expenditures of less than $10,000, departments so buy.

The hindrances to good library service shown in division of authority over the libraries of an institution are many. If various agencies are ordering books independently much duplication and resulting waste will arise, for no one agency knows of the orders of

others. A more serious difficulty, however, is the lack of knowledge of what books are possessed by the institution. With no catalogue of all the books on the campus, instructors in one department have no means of knowing of the books in another department of the institution. Books when needed can be located, if at all, only with great difficulty. The data submitted in this survey showed that several librarians had no information of periodicals in some of the libraries on their campus.

Even if all books are catalogued in the central library the books may be inaccessible. In collecting data for this survey several typical instances appeared. The graduate students of one college complained that the books they needed for their work were locked up in offices of professors and could not be obtained. In another case, an instructor at 8 o'clock in the morning desired 5 books for a 1 o'clock class. All 5 books were in different offices on the campus. It was only by 4 hours of searching that he was able to obtain 4 of the 5 books. In a third institution, a graduate student reported that he spent more time trying to find books in different departments than he did in the actual use of the books. In several cases, where the purchase of books was solely a matter for the departments, a tendency was noted to select books for the use of individual professors rather than for service to students and to members of the departments generally. With 30 or more departments buying library books independently and forming small collections, decentralization of library administration means usually duplication, wastefulness, small inaccessible collections in professors' offices, and generally poor service.

In the most successful libraries practically full authority over purchase of all library books and employment and direction of all library assistants is given to the librarian. Some administrators have stated that they would hesitate to trust their librarians with so much authority. The solution, of course, is to find librarians who are capable of assuming this responsibility. If the University of Illinois and Columbia University can find librarians who can be responsible for and capably manage centrally administered libraries with expenditures averaging more than $260,000 per year, surely librarians can be found to assume responsibility for libraries with expenditures running from $10,000 to $50,000. A capable librarian will not abuse such authority and will be eager to take advantage of the expert knowledge of faculty members.

Authorities generally recognize the value of a centrally administered system of libraries. Dr. A. C. True, as Director of the United States Office of Experiment Stations, in 1912, wrote:

> It would seem obvious, therefore, that, since the station is a department of the college, the station library should be considered a part of the college library and thus come under the general direction and control of the college librarian.

This involves the presumption that the college authorities appreciate the importance of a well-managed library and, therefore, employ a well-trained and efficient librarian, and have a good library organization.[28]

Doctor Works in his College and University Library Problems recommends:

(1) All books purchased should be part of the general library; (2) purchases of printed resources will be made by the librarian * * *; (4) the cards for books should be found both in the general and the departmental libraries * * *; (6) the librarian should be charged with the responsibility of selecting the persons in charge of the branch libraries * * *; (7) those in charge of branch libraries should be on the pay roll of the library * * *; and (10) college libraries (including law) should have no different administrative relationship to the central library from that of the other libraries * * *.[29]

Dr. C. H. Judd's report on the Survey of Institutions of Higher Education in West Virginia states:

The action taken when departmental libraries were under discussion, placed the responsibility for working out a library policy where it belongs, in the hands of the librarian. * * * In the opinion of the survey staff, a university library organization should be just what the name implies—an organization that serves the library needs of the entire institution. There is no reason why the law library should be an exception and there are cogent arguments against such independence. These become more cogent as the institution develops. Especially is this true where professional and graduate schools are developed.[30]

Departmental or divisional libraries.—The question of centralization of library administration is quite distinct from that of centralization of book collections. The larger libraries have placed departmental or group libraries in various buildings on the campus under the supervision of the chief librarian. Such collections consist of several thousand volumes each (in some cases 20,000 or 30,000), with special attendants and with separate catalogues. They are open from 12 to 14 hours per day and often have a competent librarian in charge at a salary of from $1,800 to $3,000. The books are to a considerable extent duplicated in the central library, but in any case are always entered in the catalogue of the central library and are ordered through the order department of the library. The advantages of this system are that (1) the books are brought nearer to the laboratories or the rooms of instruction; (2) the students have a more intimate association with books if collections on special subjects are shelved by themselves in special rooms; and (3) the library assistant in charge should have a more intimate knowledge of the departmental field and should be able to give more expert help to students, research workers, and faculty than would the general reference assistants in the central library.

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[28] A. L. A. Proceedings, 1912, p. 216.
[29] Works, George A. College and university library problems, 1927, pp. 77–78.
[30] Survey of education in West Virginia, Vol. IV, 1928, pp. 91–92.

Some universities have met the need for special collections by establishing group libraries. This system reduces the expense while providing most of the advantages of departmental collections. The University of Missouri has a special library for biology. The University of California is expecting to open a large biological building with a biological library. The location of departments, as well as the amount of the library budget, will determine the feasibility of this system. The increase in number of individuals using a central library may compel adoption of some such plan in large universities. In a university with 8,000 or 10,000 students, a large library all centralized in one building without separate reading rooms is not conducive to an "easy familiarity" with books in special fields. The organization of group libraries should not, however, conflict with the principle of centralized administration.

On the other hand, some colleges with far less funds for library purposes have carried decentralization of books much further than these larger libraries. Some institutions with book expenditures of less than $25,000 a year report from 14 to 45 departmental libraries. In one institution, there are four department libraries in chemistry: A general chemistry reading room, and individual rooms for organic chemistry, physical chemistry, and chemical engineering. Departmental collections with limited expenditures for administration give far from ideal service. This system may have been caused by inadequate library quarters, but even so, the formation of two or three group libraries, pending the erection of a new building, would seem to have been preferable. In institutions with limited funds, the need for small laboratory collections can be met by the loan of books for which the department is responsible and which may be recalled at any time by the librarian for the use of other readers. Such collections are not considered departmental libraries.

Specialized library service to special groups in special fields of knowledge has many distinct advantages. It does require, however, ample funds for assistants and for duplication of books. Where adequate funds have not been provided, this system of decentralization of books has many more disadvantages. The attempt to organize such a system with insufficient funds has often resulted in "concealed decentralization": Books locked up in professors' offices and unavailable to the average students.

The sciences to-day are closely interwoven. It is impossible to say that certain books will be used only by chemists or by bacteriologists. In one day, volumes of the Journal of Biological Chemistry were requested by chemists, a plant physiologist, a bacteriologist, a nutrition expert in home economics, a zoologist (physiologist), and a veterinarian. If a library can afford to duplicate

such material and provide special library assistants, departmental libraries are desirable. If not, the books should be kept where they are generally available to all who desire to use them. If the distant location of some departments requires departmental collections, this fact should be recognized by suitable library appropriation for this purpose.

The opinion of faculty members in regard to centralization of book collections has been mentioned under the use of books. It will be noted in Table 2 that all departments which had any considerable experience with department libraries favored greater centralization of books except chemistry and civil engineering.

Conclusions and Summary

The organization and administration of libraries of a large majority of the land-grant institutions are decidedly unsatisfactory. The statement of Dr. F. A. Ogg in regard to university library administration as related to research applies with much force to the library administration in three-fourths of the land-grant institutions as related both to institution and research. "The situation in general is unsatisfactory—in many reputable institutions notoriously bad; and it is with satisfaction that one notes the present stress in various quarters upon improvements in library administration, which, when realized, can hardly fail to better research conditions."[31]

It is recommended that: (*a*) The librarian, subordinate only to the president, be placed in direct charge of all libraries (including experiment-station and law libraries) connected with the institution; (*b*) the library committee or council, of which the librarian is a member, act in an advisory capacity only and on matters of general policy such as the correlation of the library service with the instructional and research activities of the institution; (*c*) all library assistants in the institution be appointed only after favorable recommendations of the librarian; (*d*) all purchases of books for any libraries connected with the institution be approved and made by the librarian; (*e*) all books be entered in catalogue of central library; (*f*) departmental or school libraries be not organized (unless distance renders imperative) where expenditures for library purposes are less than $100,000 per year.

The foregoing recommendations do not imply that expenditures for books and salaries of library assistants should not be carried on the budget of any department, school, or station, if it be so desired. It does mean that the librarian shall have jurisdiction over these expenditures. The expenditures for library purposes from departmental funds should be shown also under the heading, "Library Expenditures."

[31] Ogg, F. A. Research in the humanistic and social sciences, 1928, p. 366.

Chapter VII.—Personnel

Importance

Questions in regard to the personnel of the library arise in the consideration of nearly every phase of the activities of a library. The preceding discussions on control and book selection emphasize the importance of placing responsibility for the administration of a library upon the librarian. The preceding section on usability of libraries noted the opportunities of a library staff in increasing the use of books.

A statement by Mr. Arnold Bennett in regard to the need of an adequate staff for public libraries applies equally to college libraries.

> Public libraries are either insufficiently used, or misused, or (sometimes) not used. Just as 80 per cent of the heat of a coal fire is wasted, so is 80 per cent of the value of a public library wasted. And the reason is the inadequacy of the staff. One hears that public libraries do not spend enough on books. I would reply that if they spent less on books and more on an educated staff far better results would be obtained. It is not books that lack in the libraries; it is the key to their effective employment. That key is the individualities and the attainments of librarians and their staffs.[32]

If the library is a major factor in education, if the library is actually the "center of the intellectual activities of the campus," then it follows that the qualifications and compensation of the members of the staff which supervise this important center should receive careful consideration. Appointments to library positions should be regarded as of as much importance as any in the institution. The qualifications include both general and professional education, professional experience, business and administrative abilities, a human interest in students, a willingness to serve, and a thorough sympathy with, and understanding of, educational processes. In institutions interested in research, additional scholarly qualifications are necessary. Salaries should correspond with the duties and the qualifications.

A library staff is measured best by the service the library renders. Do students and faculty consult the library staff? What is the influence of the librarian on the campus? What aid does the library staff render in the selection of books? Do the assistants give the students an opportunity to see and use the new books that are received or do they distribute them to favored members of the faculty

[32] Publishers' Circular, Nov. 3, 1928.

as soon as received? Does the loan attendant make a decided effort to see that a student receives the book he wants or is he sent upon useless wanderings? Is the instructional work of the institution conducted with little reference to the library or are the resources of the library utilized? If these statements are recognized as fair criteria, then data collected in this survey and noted in Chapters I and II on usability of libraries clearly indicate that the personnel of the library staff is the one element in the library service of land-grant institutions that needs the most careful attention and the greatest emphasis.

Without an efficient staff funds spent for books and buildings may be and have been wasted. An efficient library staff will know book and building requirements and will emphasize the importance of use of books in instructional work. Through this emphasis an efficient staff will affect decidedly the amount allotted for books and periodicals, since it will be able through presentation of facts to support budget recommendations. Books and buildings are worthless unless used. An efficient library staff is an absolute necessity in securing adequate use.

The characteristics of the library staff are treated under (*a*) Duties, (*b*) General and professional educational qualifications, (*c*) Professional experience, (*d*) Salaries, (*e*) Faculty status, (*f*) Hours of service, (*g*) Educational opportunities, library schools, (*h*) The clerical staff, (*i*) Size, number of assistants on staff, and (*j*) Reorganization of staff.

The work of a library falls into two divisions. Much of it requires expert knowledge; other portions such as shelving of books, labeling, etc., do not require any special education or training. Several libraries have, upon this basis, divided their staffs into (*a*) the professional class, and (*b*) the clerical class. The clerical staff is given separate consideration later in this section; the qualifications of the professional staff alone are considered at this point. For convenience in discussion, the duties, qualifications, and salary of the librarian are considered first separately.

The Professional Staff—The Librarian

Duties.—The important duties required of the head of a modern college library are not understood in all institutions. In the introduction, reference was made to the fact that, in the nineteenth century, libraries were considered of so little importance that the duties of the librarians were assigned to professors as part-time work. This practice still exists in four land-grant institutions. In two of them, professors of English are serving as part-time librarians. In one, 50 per cent of the time of the librarian is given to the directorship

of the extension service. In the fourth, the assistant professor of German is giving part-time service to the library. In one of these four institutions a professor is teaching 15 hours a week and giving the balance of his time to library administration.

A library can be made of direct service to every faculty member and every student. It can be a revelation of what modern education means. Doctor Robertson states, "What is true of the high school is true even more of the college, the library is 'an integral part of the educational scheme.' The trained librarian can make it so."[33] Through the library, the student can acquire an insight into methods of self-instruction which will serve him throughout his life, not only as a necessary aid to progress in his career, but also as a means of personal growth and development. Through the library, instructors have found means to keep their teaching alive, to avoid ruts, and to guide their students in sound habits of acquiring knowledge.

The librarian should be primarily and directly responsible for the administration of the library. The selection of assistants, the promotion of the efficient, the discontinuance of the services of the inefficient, the efficient administration of departmental libraries—these are some of the duties the librarian should perform.

One dean, some years after the reorganization of a library, stated that the greatest incentive to improvement in the instructional work in his college, and the marked progress in this work, were due to the influence of the librarian. The fact that many libraries have not reached this ideal of usefulness has been shown. It has also been shown that many librarians do not perform all of the duties noted as properly belonging to the office.

The causes for these failures will become evident if the following questions are answered: What are the present qualifications in education and experience of the librarian? What is his salary?

General and professional educational qualifications of the librarian.—In some respects library service has followed the evolution seen in the profession of medicine. Fifty years ago an embryo doctor could obtain his education by interneship and by association with a practicing physician. No formal professional education was necessary. This same status formerly existed in the library profession but is rapidly disappearing. Now, certain outstanding libraries require a bachelor's degree and a year at a professional library school before appointment to the position of even senior assistant. The University of California, as an example, requires of a candidate for appointment to any of its professional library positions a bachelor's degree, a knowledge of two foreign languages, and a course of training in a recognized library school. In addition, some years

[33] Educational Record, 10: 23, January, 1929.

of library experience are required of all but junior assistants. Several other institutions have made the same requirements as California.

In more than half the land-grant colleges and universities, however, the chief librarians do not meet the minimum standards for even a junior assistant at such institutions as California. Eleven librarians of land-grant institutions do not have a bachelor's degree. More than 20 have had no library school training.

Doctor Works reported that in 11 institutions studied by him 12.3 per cent (7 out of 57) of the heads of library departments had no bachelor's degree.[34] In land-grant institutions a much higher percentage (22.5 per cent) of the much more important chief librarians do not have bachelor's degrees.

In the case of librarians with bachelor's degrees a report of the number of years spent in formal study after the degree was earned is of interest. In land-grant institutions the median number of years so spent by chief librarians is one year; in the 11 institutions surveyed by Doctor Works the median for heads of departments is two years.

The educational qualifications of the chief librarians in most land-grant institutions are below those of the less important heads of library departments in Doctor Works's group. It should be noted, however, that in certain land-grant institutions librarians without library school training or college degrees were appointed many years ago, before professional library education reached its present development.

In contrast to the practice of many of the instructional staff, few librarians continue their formal studies after their one or two years at a library school. Members of the instructional staff feel the need of continuing study in their fields; doctors take time for clinical work at various hospitals. The question arises whether it would not be conducive to the more efficient functioning of libraries if it became the custom for librarians and heads of departments to spend occasionally three months in formal study at some graduate school. Why should librarians be the only members of a university faculty who almost universally discontinue their formal professional study after a year or two at a professional or graduate school? There might well be a library "clinic" or institute for three months if qualified leaders could be found to conduct it. Instructors have opportunities for graduate study without deduction from their salaries; why should not librarians be on the same basis? The question of courses of study to be pursued is discussed in the consideration of library schools.

[34] Works, George A., College and university library problems. 1927, p. 90.

The present librarians in some of the smaller land-grant colleges, and possibly a few selected assistants, could improve their professional educational qualifications if six months could be spent in a well-administered technical library. This experience would give them a knowledge of the most useful publications and of methods of increasing use of books. The expenses might well be borne by both libraries, as both would be benefited.

From the returns made in this survey the need of better educational preparation for the librarian is obvious. The education of the librarian in the typical land-grant institution at present is not a satisfactory preparation for his duties.

Professional experience of the librarian.—Experience in other libraries is of value because of the opportunities afforded for study of methods actually in operation and for the development of the latent abilities of the individual. In the appointment of librarians, as well as of assistants, the most important measures of ability are the work actually accomplished and the services actually rendered—much more so than the grades received in library school. A librarian should be judged by what he is accomplishing. Important positions in the instructional staff are filled only by those who have proved their ability to teach by the positions they have held. Many institutions require from a candidate experience in more than one institution before appointment as head of an instructing department. Equivalent experience in libraries should be required of librarians.

Many libraries do now require previous successful library experience for all positions except the lowest—that of junior assistant (salary $1,500–$1,800). The American Library Association recommends not less than two years of successful experience (in addition to a bachelor's degree and one year at library school) for the position of librarian of a college with fewer than 600 students. For the position of senior assistant "one year of successful experience in a scholarly library of more than 50,000 volumes" is suggested.[35]

In 10 land-grant institutions the librarians had no library experience previous to their appointment, and in nine of these cases they had no library school training with the exception of courses at summer school. It follows, therefore, that in these nine institutions librarians were appointed who had neither previous library training nor experience. In such cases a complete lack of understanding by administrators of the functions of the library and of the qualifications needed for library positions is evident.

The fact that individuals have received college degrees and have successfully completed a year at a professional library school does

[35] A. L. A., Budgets, classifications, and compensation plans for university and college libraries. 1929, pp. 19–22.

not necessarily mean that they are qualified to act as librarians or even as heads of departments or senior assistants. The medical profession has long recognized that a period of interneship is necessary before a man can be considered equipped for the independent practice of medicine. Since the library profession has succeeded in obtaining recognition for the professional status of librarians, it may be worthy of consideration whether the example of the medical profession should not also be followed in the arrangement for a period of interneship prior to assumption of important library responsibilities. It would not be difficult to select certain colleges and universities that are preeminently qualified to assist in the training of future professional librarians by giving them practical experience in scholarly libraries. If such opportunities were afforded, university and college presidents would have an opportunity to judge the qualifications of candidates, not only from their scholastic record at library school, but also from their ability as proved in actual employment.

Salaries of librarians.—From the discussion in the two preceding sections, it is apparent that in many land-grant institutions the qualifications of librarians in formal education and experience do not meet the requirements of the positions nor are their qualifications equal to those of the less important heads of library departments in another group of institutions. Are the salaries paid librarians in land-grant institutions sufficient to attract candidates with the required qualifications?

Several of the larger institutions, outside the land-grant college group, have placed the salaries of their labrarians at from $8,000 to $12,000. No similar salary is paid to any librarian of a land-grant institution, although, as shown elsewhere in this report, a few of the land-grant college libraries are among the strongest of any in this country in the character and use of their book collections.

Doctor Works, in his survey, found that 3 out of 14 reporting institutions gave their librarians a salary status equal to or above the average for deans. In 9 out of 15 institutions, he states that, "the position of librarian is better financially than that of the full professor. It is in the majority of cases intermediate between the full professorship and the deanship." Doctor Works concludes that "the position of librarian is fairly comparable with the position of dean. In the smaller institution, it perhaps is more fairly compared with the directorship of a school or the headship of a department." [36] In this comparison, it should be noted that librarians and library assistants are not given the three months' annual leave which is the

[36] Works, George A., College and university library problems, 1927, p. 87.

perquisite of the instructor. The instructor may be able to increase his salary by teaching in a summer session. The librarian can not.

The salaries of librarians in land-grant institutions are much below the salaries in the institutions studied by Doctor Works. One of 48 institutions, only 2 (as compared with 3 out of 14 in Doctor Works's group) pay their librarians the typical salary of a dean. The typical salary of a librarian of a land-grant institution is not intermediate between the full professorship and the deanship; it is the typical salary of an associate professor. The salaries paid at certain institutions are far below the typical median. Four institutions are paying their librarians a typical salary of $1,775 for a position which should require (1) a bachelor's degree, (2) a year of graduate study at a library school, and (3) several years of professional experience. One institution allows $2,200 for a librarian who also serves as a language teacher. Four land-grant institutions pay their librarians (*a*) $1,500 (students 626), (*b*) $1,700 (students 980), (*c*) $1,980 (students 1,219), (*d*) $1,850 (students 1,610). These colleges are among those which in the discussion on usability of libraries were shown to have the lowest use per student.

This report has emphasized the failure of certain libraries to function, the little use of books, the complaints of faculty members as to poor service, the lack of confidence of the faculty in the librarian, the lack of unified administration, faulty selection of books and lack of control of the library activities by the librarian. These failures are explained by the fact that the salaries paid are commensurate neither with the duties which should be performed, nor with the educational and professional qualifications which should be required. Grossly inadequate salaries are insufficient to attract candidates who are equipped educationally and who have proved their value.

The salaries paid are indicative of a lack of understanding by college administrators of the value of the college library and its relationship to good instruction, despite the fact that the importance of the library is generally recognized by college administrators, in print and in addresses. The customary excuse by college administrators for such salaries is "we ought to pay more, the librarian is worth more, but we do not have the funds." The facts do not justify this statement. The failure is not caused by the limited amount of funds available for the educational work of the institution; the deficiency is due to the proportion of educational funds used for library support. Amherst expends on its library (excluding expenses for care of building, light, heat, etc.) more than 7 per cent of the noncapital expenditures of the college; Bowdoin more than 8 per cent. The 4 land-grant institutions with salaries of librarians of less than $2,000 are spending, respectively, 1 per cent, 1.3 per cent,

1.9 per cent, and 2.3 per cent. It is apparent that the difference lies not in the total funds available, but in the proportion of such funds used for library operations.

The conclusions should not be understood as implying that all the present occupants of these positions should receive the financial compensation suggested. The data do not justify such a conclusion. Some librarians are not effective in the administration of their libraries and are not qualified to receive the salaries which should be paid to the occupants of these positions. The position may be worth $8,000, but the librarian may not. In the same position $6,500 may be too low for one individual and $2,000 too much for another.

It is recommended that the position of librarian in all land-grant institutions be given a salary status not below that of the typical academic dean. This salary will be in most land-grant institutions equal to the more highly paid full professors. An academic dean is defined as the administrative head of a school, college, or division, consisting of several departments. This recommendation, which is based solely on independent study of conditions in land-grant institutions, is in general agreement with the conclusion reached by Doctor Works.

Summary.—(1) The librarian's position is one of great responsibility. It should require, as a minimum, a college degree, not less than a year of library school, and some years of experience. No position of librarian should be filled in the future except by one possessing these qualifications. Librarians in few land-grant institutions meet these qualifications at present.

(2) Some arrangements for a continuation by librarians of their formal education are desirable.

(3) The assignment of a member of the instructional staff to duties in the library or the assignment of a librarian to instructional work (other than library or bibliographic courses) is wholly inconsistent with the duties required of the head of a functioning library.

(4) Salaries paid heads of libraries should correspond with the salaries paid deans or the group of most highly paid full professors.

The Library Staff, Exclusive of Librarian

Duties.—With the exception of the librarian, the most important positions on a library staff are those of heads of library departments. Certain departmental heads (loan and reference librarians) are in charge of the immediate service to students and faculty; others (catalogue, order, and serial librarians) are responsible for the acquisition and proper entering of material. Senior and junior assistants serve in the more detailed work of these departments.

The loan and reference librarians are in charge of direct contacts with students and faculty. The use of the library by the average student will depend to a large extent upon the knowledge both of books and people possessed by these two departmental heads. Guidance in individual reading, as well as meeting direct instructional needs depends greatly upon the efficiency of these two heads of departments. They should not only know books in general and bibliographic tools in particular; they should also have the ability to give that knowledge to others. In large libraries these two heads of departments have administrative duties in the organization of the work of their departments.

Catalogue, order, and serial librarians are charged, respectively, with the efficiency of the catalogue, the prompt and economical buying of books, and the acquisition of periodical literature, of special importance in a scientific institution. The vexing question of binding is often assigned to the serials librarian.

Education and experience.—A study of the qualifications of heads of the loan, reference, and catalogue departments in land-grant colleges was made. These departments were selected because they were found to exist more commonly than order and serials departments. Certain libraries had no departmental heads; the use of books in such libraries and the book additions were slight. Of 95 heads of departments, 18 (19 per cent) did not have a bachelor's degree, 28 (30 per cent) had no experience before appointment to their present positions, 23 (24 per cent) could not read either French or German, 44 (46 per cent) could not read German, and 27 (28 per cent) could not read French. Doctor Works reported that only 12 per cent of heads of departments in his group did not have the bachelor's degree.

The suggestion that it might be desirable for librarians of the smaller land-grant colleges to spend six months in a much-used library applies also to certain heads of departments and to other professional assistants. In schools where agriculture is of major interest, such experience would be an excellent preparation for their duties, and would to some extent remedy the lack of educational preparation existing at present. The question of possible internship as a preparation for librarianship would also seem worthy of consideration as a preparation for the duties of heads of library departments. One year's experience in a functioning library would be more valuable in training and experience than several years in a little-used library.

A study of the service a modern library is rendering through its loan and reference departments, and a consideration of the knowledge of books and languages and bibliographic tools required in cataloguing, serials, and order work, justify the statement that for the headships of all departments in the smaller land-grant colleges, the

minimum requirements should be a bachelor's degree, a year at library school, a knowledge of two foreign languages, one of which must be German, and one year's library experience. These are the requirements for a senior library assistant at many institutions. The requirements in the larger institutions are, of course, much higher. These minimum requirements are not met at present in a majority of the land-grant institutions.

Salaries.—The salaries paid heads of library departments fall further below any satisfactory standard than do the educational and professional qualifications of the individuals occupying these positions. The average salary paid the head of a catalogue department is $2,080, the reference department $2,060, the loan department $1,762. There is great variation. Thirteen institutions are paying heads of some departments less than $1,500. On the other hand, the typical salary of heads of library departments at the University of California is $3,000, at the University of Wisconsin $3,250, at Iowa State College $2,400, at Ohio State University $3,000. These salaries are also typical of the salaries paid assistant professors in these institutions. Corresponding salaries are paid by only a few of the land-grant institutions. The insufficient salaries account for the unsatisfactory educational qualifications of library staff members. It is impossible to obtain, at salaries ranging less than $1,500, satisfactory professional library assistants, but many heads of library departments are paid no more.

The duties and requirements of positions as heads of library departments justify a minimum salary in colleges with fewer than 1,000 students equal to that of an instructor and in larger institutions equal to that of an assistant professor. In the largest institutions in which research is a major interest the educational qualifications and salaries of heads of library departments should approach more nearly the typical salary of the associate professor.

This conclusion, reached upon the basis of the survey returns, is in general accord with the American Library Association "Budget classifications and compensation plans."[37] Doctor Works's opinion is as follows:

> The headship of such departments of the library as order, cataloguing, reference, etc., in large libraries, would seem to be fairly comparable in responsibilities carried with the assistant professorship.[38]

The education and salary status of other members of the library staff do not offer the same problems. The smaller institutions at present have few professional assistants; some of the large institu-

[37] A. L. A. committee on classification of library personnel. Budgets, classification, and compensation plans for university and college libraries, 1929.

[38] Works, George A. College and university library problems, 1927, p. 86.

tions have adopted a scale of from $1,500 to $1,800 for junior library assistants (requirements bachelor's degree, two foreign languages, one year at library school). These requirements and salaries are believed to be reasonably satisfactory and are recommended for adoption.

Summary.—(1) A professional library staff should be divided into junior and senior assistants and heads of library departments.

(2) The minimum educational requirements for junior assistants should be a bachelor's degree, knowledge of two foreign languages, and one year at library school. The salary should range from $1,500 to $1,800.

(3) The professional requirements for senior assistants and heads of departments in smaller libraries, in addition to those mentioned above, should include at least one year of satisfactory experience, with a minimum salary of not less than $1,800.

(4) For heads of departments in the larger libraries additional formal education after the first degree is earned and additional experience should be required. The salaries should correspond with those of assistant or associate professors.

(5) The qualifications and salaries of the library staffs in most land-grant institutions do not at present meet these requirements.

Faculty Status

The preceding discussion compares duties, qualifications, and salaries of professional members of the library staff with corresponding members of the instructional staff. Should members of the library staff be given the actual titles of "professor," "associate professor," etc.?

Librarians in general have shown considerable interest in the question of faculty titles and rank. Twenty-three librarians of land-grant institutions have the rank of professor; 4, the rank of associate professor; 5, assistant professor; 1, instructor; the remainder have no rank at all, although 3 state they are "members of the faculty." In 9 cases, heads of library departments are "instructors" or "assistant professors."

If faculty rank is intended to include the title of professor, associate professor, etc., the question does not appear as important as the emphasis which has been given it in professional library literature seems to indicate. This opinion is based in part upon the fact that, of the 23 librarians who have the title "professor," 12 do not receive the typical (median) salary of the position. Three librarians, who report that they have the title "full professor," do not receive the minimum salaries listed under the scale of full professors in their institutions. In these cases the titles are of little

importance. A librarian's position on the campus is determined by his performance of his duties and by the success of his activities. The title "librarian" should be of more importance and should have more significance than that of "professor." Some librarians have made it so.

If faculty rank is intended to include, not titles, but relative salaries and opportunities to attend and take part in meetings of the senate, academic council, faculty, or other governing or deliberative bodies, the case is quite different. The library is an integral part of the instructional work of an educational institution. To enable it to function effectively the staff should be familiar with educational needs, aims, and development; the library personnel should be present and take part in discussion of educational policy. One example can be quoted. It was proposed at one land-grant institution to give graduate work in English. The matter was decided without the knowledge of any member of the library staff. The book collection was totally inadequate for this instruction. The cost of purchases necessary to make this collection even fairly adequate would have been in excess of $50,000. The presence of the librarian at the deans' meeting, where this matter was decided, might have saved an embarrassing situation.

The actual titles to be held by members of the library staff are not considered important. In regard to membership on governing and deliberative bodies of the faculty, members of the library staff should be placed on the same basis as the members of the instructing faculty to whom their salaries and duties correspond.

Hours of service and vacations.—The hours of service of the professional staff in the libraries of land-grant institutions vary from 37 to 45 hours per week. The typical (median) is 40. Eight out of 48 reporting require 44 and three require 45. It is noted that in many institutions librarians and library assistants voluntarily greatly exceed these hours. One librarian reported her hours of work from 44 to 70 per week. Personal observation shows that many members of library staffs averaged voluntarily 10 hours per day for 6 days in the week.

Library work is at times exacting, requiring a high degree of concentration. The pressure of work in an efficient library is heavy. The average individual can not work at full speed for 8 hours per day, much less can he have sufficient energy for additional study after spending from 8 to 12 and 1 to 5 at a busy loan desk. Librarians, if they are not to stagnate, should have certain free time for reading and study. There is no time during regular hours for the activities necessary to keep an individual abreast of his profession. The typi-

cal schedule of 40 hours for the professional staff should be the maximum in all institutions.

Vacations.—In more than three-fourths of the institutions a vacation of one month is allowed the library staff. Some institutions allow a month for their professional staff and two weeks for their clerical assistants. In a few institutions the librarian has two months' leave. One month's vacation is almost the only matter which seems to have become fairly well standardized in college library administration.

Under "Librarians' salaries" allusion was made to the fact that instructing members of the faculty customarily have from three to four months' vacation, while professional members of the library staff have one month. Under "Educational qualifications" was noted the fact that librarians customarily do not continue their formal studies after accepting their first professional positions. The failure of librarians to continue their formal studies may be due to a large extent to the fact that their vacations are more limited than are those of members of the instructing staff. The remedy, however, is not so much to increase the regular vacation allowance as to provide special leave occasionally for advanced study. An occasional three months' leave with pay, for purposes of formal study and research by certain exceptional members of some library staffs, qualified for such study, should increase the effectiveness of the service of a library. This formal study should be considered an opportunity to work in the graduate field, and not a means to remedy deficiencies in fundamental educational qualifications. These deficiencies should be removed at the expense of the individual, but with the utmost encouragement by the institution through permission to take courses in the institution and leaves of absence for study at other institutions.

Preparation for professional librarianship—Library schools.—Emphasis has been laid on the needs for professional education by those preparing for librarianship and for continuation studies and research by librarians. Are there at present facilities in this field that are satisfactory for the special requirements of land-grant institutions?

Lack of a scientific background in library-school students.—The American Library Association in recent years, possibly as a result of a study under the auspices of the Carnegie Foundation, has given much attention to the question of library training. Nevertheless in one important phase of education for librarianship the library schools are not supplying certain needs of the land-grant institutions. In all these institutions pure and applied sciences are major activities. Yet a graduate of a library school who has had a major in the

sciences is almost unknown. An inquiry of several library schools in 1929 brought out the fact that they had no student who had a major in science. Library work has seemed attractive almost exclusively to those who have majors in English, history, or in other of the so-called arts groups. In its emphasis on observation and accuracy as well as in knowledge of subject matter, science should give an excellent general training for librarianship.

Library assistants with a knowledge of the sciences would seem to be necessary in land-grant institutions. Assistants with this knowledge are not obtainable at present. If a student early in his collegiate work can decide on librarianship as his life work, as students now do in engineering or in medicine, and if he can be persuaded to take a major in science as a preparation for this profession, the present conditions will be relieved. One university president noted as a special need for the library staff that professional librarians should be definitely committed to librarianship as a permanent occupation. If this commitment occurs early in the collegiate life of the individual and proper courses are taken, the library staff will have a greater familiarity with the major departments of instruction at land-grant colleges. In the meantime, deficiencies in assistants' knowledge of the sciences can be partially remedied by study in the institutions in which they are employed.

Need of a different type of library school course.—Courses now given in library schools do not seem to be designed to give students the ability to form judgments objectively from a study of the facts rather than subjectively from personal opinion. This ability is obviously badly needed by college library personnel. Failures to report data for this survey have shown that many librarians do not know essential facts in regard to the library service of their own institutions. Library schools are giving excellent instruction, as they have for more than 30 years, on cataloguing, classification, and the internal work of library service. They have not progressed in accordance with the development of educational methods to teach some of the fundamental factors which underlie successful operation of a college library.

For those who expect to qualify for positions of librarians in land-grant college libraries there are many important aspects of preparation that are not listed in library school catalogues at the present time. In addition to present courses, instruction should be offered in (*a*) business methods in college libraries, (*b*) literature of various sciences, (*c*) objective methods in determination of library needs and future library development, including tests on use of books, (*d*) methods for determination of most valuable periodical publica-

tions,[39] and (*e*) place of reading in instructional work in various departments, and many other similar subjects. These courses might take the form of seminars and be given during the second graduate year.

Need for advanced continuation courses.—The need for continuation courses after graduation from library school has been mentioned under educational qualifications of the librarian. Library schools could be of service in the development of strictly graduate courses and in emphasis on the need of research. The courses now offered fail, with very few exceptions, to offer attractive media through which professional librarians and heads of departments, who have completed their fundamental education, can pursue studies which will better equip them for their work. Such courses, in addition to those mentioned in the preceding paragraph, would include, for example, a study of research technique in education, the application of research methods to investigation of library processes, research in relationship of reading to instruction, psychological determination of the most important qualifications for various library positions, etc.

Library schools have an opportunity to lead in the development of research in the field of library administration. Little research and little careful investigation in detail of the functions of a library, its relation to instruction, objective studies of library use, and exact qualifications needed for library assistants have been made. Librarians should develop these fields not only for their own future usefulness but, even more, for the extension and growth of library science.

Library school students unaware of necessity of adequate experience.—Many students leave library school apparently with the conviction that their library education is completed, and that they are fully prepared and qualified to act as chief librarians. Several students at present at library school stated that they wanted positions as "chief librarians" and that they were unwilling to accept subordinate positions; they wanted "executive work." Some have gone directly from library schools to the headship of college or university libraries. Library schools should make it clear to their students that after graduation they will still have much to learn before they are fully qualified to fill the important positions of librarians of college and university libraries. Too many men immediately or within a year after graduation from library schools consider themselves competent to be administrative heads of college or university libraries.

Summary.—There is need of: (*a*) A greater emphasis on science in the training of candidates for positions in libraries of land-grant

[39] Cp. methods used in Science, 46: 385–89, 1927.

institutions; (*b*) additional courses which will emphasize fundamental factors in library administration, rather than technical routine methods; (*c*) research in the field of library science and research courses for those at present serving in library positions; and (*d*) more emphasis by library schools on the need of experience in subordinate positions as a necessary preparation for the higher positions.

Administrators and chief librarians can aid in the attainment of these objectives by emphasizing in their correspondence with library schools relative to vacant positions the need for applicants with the qualifications indicated.

The Clerical Staff

Much of the work in a library is of a clerical nature which does not require professional education or experience. This work consists, for example, of the pasting of labels in books, the collection of magazines for binding, the copying of catalogue cards, the delivery of books on the campus, and the printing of call numbers on the backs of books. The items in the budget for these services are oftentimes called "wages," or "student assistants." Some institutions include under this item all employed as clerical assistants.

It is a decided waste to use a highly trained professional librarian for purely clerical duties. Most colleges are taking advantage of the possibility of the employment of students for these duties. A few colleges do not seem to take advantage of the fact that clerical assistants can do much of the routine work. A considerable financial saving and much relief to what should be a highly trained professional personnel can be obtained by the employment of clerical help. On the other hand, some institutions have relied too greatly on clerical assistance. These facts are noted in the succeeding chapter on financial support under the heading "Distribution of the budget."

Failure to distinguish between the clerical and professional assistants in budgets and in titles is noted in many institutions. The failure to make this separation is responsible for much of the misunderstanding of the nature of library employment. This fact may be one of the reasons why the professional library staff is not regarded as on the same plane as the instructional staff. More serious, however, is the fact that these failures too often result in highly trained personnel doing clerical work which could be performed more cheaply by others.

It is recommended that there be a distinct separation of the clerical work of the library from the professional duties of the trained assistant and that such separation be recognized in the budget.

Size of staff.—How many assistants are required for a library staff? How can the number needed be determined for a library which shows a fair amount of use?

An examination of the minimum amount of work to be done, the desks to be covered, the books to be catalogued, will give some indication of an answer to these questions for the smaller institutions. This examination will give a number of members of the library staff which is regarded as an absolute minimum and not a standard. It is presupposed that in the determination of number of assistants by this method, the library is open from 12 to 14 hours per day (8 a. m. to 10 p. m.); that not less than $6,000 is spent for books, periodicals, and binding each year, and that the library is used in accordance with the requirements of effective instruction, as noted in the introduction to this study of libraries.

In a library of an institution with fewer than 600 students, open 12 to 14 hours per day, the loan desk which must be covered all the time will require two assistants. Part of the day a student assistant will be required to obtain books for readers. The reference desk will need an attendant at least half of the time. There must be someone to catalogue the books. The librarian should not be confined to any of these duties, although he should be prepared to attend to them occasionally and to keep in close touch with the work. It follows, therefore, that a staff of at least five will be required in the land-grant institutions with enrollments of 500 or 600. The American Library Association sets the standard at 5½ for a student body of 600. This number is an actual minimum and is not regarded as a standard or as necessarily satisfactory.

Another method of determination is to ascertain how many assistants, say for 500 students, are employed by libraries that show efficient use and fairly satisfactory service. In determining the number of employees, some difficulty was found on account of the part-time employment of student assistants and the necessity of ascertaining what would be the equivalent of such part-time assistants expressed in number of assistants working full time. The typical student assistant receives 35 cents per hour. On the basis of a typical week of 40 hours and a typical year of 50 weeks, $700 spent for student assistants would mean the equivalent of one full-time clerical assistant. This basis is not absolutely accurate for any institution, but is believed to be satisfactory for the purpose of this study. It should not be used, however, as a basis for future additions to the library staff without regard to type of assistant required or salary to be paid. It is used solely for a determination of number of assistants needed and does not take into account the variable compensations for various grades of service. On this basis, the University of

Hawaii employs 8 for an enrollment of 840, Massachusetts Agricultural College, 8 for an enrollment of 570, and Amherst College, 14 for an enrollment of 700. These libraries are much used. These figures indicate that a library staff of 5 or 5½ is not too high a minimum for an enrollment of 500 or 600 students.

What increase in library staff is needed as the enrollment increases? The University of California has 4 assistants to every 500 students; Illinois, 4.5; Iowa State College has 4. These institutions show above average use. Two of the three report arrears in current cataloguing. No institution which reports a loan of books per student above the average for the group (in so far as circulation statistics were reported) has fewer than 4 assistants for each group of 500 students.

The minimum requirement proposed, therefore, is 5 assistants for a college of 500 students, 10 assistants for 1,000 students, and 4 additional assistants for each additional 500. These figures include student assistants on the basis given above.

How does the number of assistants in land-grant institutions as a whole correspond with the tentative minimum suggested above? Nine land-grant institutions, with an average student enrollment of 1,034, employ a library staff of four or fewer. These institutions do not meet the minimum requirement for a student enrollment of 600. Two institutions employ a librarian with no assistants; one employs a professor on part time with two full-time assistants. It is not surprising to note that these libraries show little use. The five institutions which reported the fewest number of books loaned to the individual typical student per year had an average of 2.1 assistants for 500 students.

It is apparent that the faculties of these institutions with limited library staffs are not using library readings in connection with their instruction, and to this extent their instruction is not in accord with modern methods of education. It is suggested that in these cases a special study be made of the instructional methods used and the ability of the library to meet generally accepted methods of instruction.

For a library that is functioning in the educational program of an institution using modern methods of instruction, a minimum of a library staff of 5 for 500 students, 10 for 1,000 students, and 4 additional assistants for every additional 500 students is recommended. The number of assistants should be figured on the basis mentioned above.

Reorganization of Library Staff

It is apparent that the library staff can be regarded as satisfactory in only a few land-grant institutions; in certain others it should be

strengthened and enlarged. In many institutions complete reorganization is necessary. It is not desirable, even if it were possible, for a reorganization to take full effect at one time. If a library is not functioning, it can not be transformed into an effective organization in 30 days. Two or three years may be required. Book collections must be built up and a start made in the employment of an efficient staff.

The first step in the process should be to obtain a fully qualified and experienced chief librarian. An attempt to develop the book collection, to plan a building, or to appoint assistants before a capable librarian is obtained may, and probably will, waste funds. An able librarian will start the foundation of an effective service on a permanent basis and if supported will within a few years change completely the position of the library in the instructional scheme of the college. He is the one who can best guide the acquisition of material, the selection of the best-qualified assistants, the plans of a new building, if one is to be built; but, more important, he can with adequate financial support so organize both material and personnel—books, building, equipment, staff, book selection, and use—so as to make all such factors serve the one end—effective instruction to students.

One college president with a library showing great improvement in the past few years stated in connection with this survey that his solution for the library problems was to find a capable librarian, to give him authority, and to support him. This somewhat exceptional president might have added that, from an exceptional knowledge of the functions of a modern library, he also supplied constructive leadership, suggestions of general policy, and the administration necessary to relate the library to the instructional and research work of the college. The first step in the reorganization of the library, therefore, is to obtain an efficient librarian.

The chief difficulty in definite recommendations as to the library staff is the question of what to do with the present librarian and library assistants when they are not qualified for the positions they are holding. This question must be decided in accordance with the policy of each individual institution. Since the salaries of these individuals probably do not correspond with the positions they are holding, it may be a satisfactory solution to give them the actual positions in the library service to which their qualifications and salaries entitle them and to fill the positions they are now holding with individuals better qualified and better paid. Another solution is to transfer them to other departments of the college.

Summary

Findings in regard to library personnel.—(1) A study of the activities of library staffs, the duties performed, and the use of books

justifies the statement that the library personnel in many land-grant institutions is not measuring up to the full possibilities of the positions held. Librarians and assistants in many cases have neither the educational qualifications nor the professional experience which are necessary for the full functioning of libraries.

(2) The library staff is insufficient in numbers in most land-grant institutions; the salaries paid professional members of all library staffs with the exception of three or four institutions are inadequate.

(3) The library schools are not supplying candidates for positions in land-grant institutions with fully satisfactory educational equipment; neither are the courses generally offered for advanced work entirely satisfactory.

Recommendations

(1) The librarian and all members of the professional library staff appointed in the future should have a bachelor's degree and a year at library school. In addition, chief librarians and heads of departments should be able to show successful professional experience and professional accomplishments. The experience of the chief librarians should have been in important positions in ably administered libraries of more than 100,000 volumes.

(2) The salaries paid the librarians should be not less than the typical (median) paid the deans or the highest grade of full professors. The salaries paid heads of library departments should be not less than the typical (median) paid instructors in institutions with fewer than 1,000 students. In larger institutions the salaries of heads of departments should equal the typical salaries paid assistant or associate professors.

(3) In many land-grant institutions the library staff should be reorganized and enlarged; in others it should be strengthened. The first step in reorganization is the appointment of a capable librarian.

(4) Members of the professional library staff should be included in such councils, senates, or faculties as admit deans, professors, associate, or assistant professors, and instructors, with corresponding salaries.

(5) More emphasis should be given by administrators and librarians to the need for a knowledge of the sciences by candidates for positions in land-grant institutions and to the organization of strictly advanced graduate and research courses for those who would qualify to fill the higher positions in libraries of land-grant institutions.

Chapter VIII.—Financial Support and Library Budgets

It has been shown that some of the libraries of land-grant institutions are being used slightly as compared with others. It has also been shown that these less-used libraries have inadequate book collections and inadequate staffs, both in numbers and in educational and professional qualifications. The fact has been noted that the salaries paid library staffs are less than the salaries paid to the occupants of similar positions in the group surveyed by Doctor Works. It has been shown that salaries in the least-used libraries of land-grant institutions are grossly inadequate.

In view of these facts, the following questions require consideration. What financial support do libraries of land-grant institutions receive? What are the library expenditures in proportion to the number of students enrolled? How do the expenditures in the less-used libraries compare with those with much greater use? In order that the present tendency may be ascertained, some attention is given to the increase in expenditures for library purposes during the past 20 years. The question of special fees for library purposes also requires discussion, as these fees have a direct relation to support. An examination of items included in library budgets and the preparation of budgets is desirable as a preliminary to the consideration of financial support.

What Do Library Budgets Include?

The failure to centralize in the librarian authority for library administration in many institutions is paralleled by a corresponding failure to indicate in the library budget the total expenditures for library purposes. The experiment station and law libraries are often administered independently of the general library; their expenditures are carried on the budgets of the experiment station or law school, respectively. For the remaining libraries on the campus there seems to be no consistent policy in a majority of the institutions. Twenty-five out of forty-three reporting institutions do not include in the library budget all expenditures for library books and periodicals. Seventeen of forty-three do not include salaries of all library personnel. In one institution, books for a department library may be bought in part from funds available in the library budget and in

part from funds available in the department budget. A library assistant's salary in one department may be carried on the library budget and in another department on the department budget.

In five cases institutions stated frankly that the amounts spent for library services (books and personnel) in their institutions could not be given, except by examination of every separate voucher in the institution. One institution stated that it had no budget, but that every requisition was considered on its merits. Apparently 10 of the 48 reporting institutions did not know what their libraries were costing them and could not give the amount spent for library purposes for the last fiscal year covered by the survey. Twenty-two institutions could not give their library expenditures for 1910.

If a financial report is designed to show how the funds of a college are expended, the item "Library expenditures" is misleading and deceiving in these cases. If a budget is drawn up as a guide to the expenditures of funds in an institution, it should presumably include all of the funds to be expended for a given purpose. If changes occur during the year, the budget should be modified to correspond. It may not be possible to include in a library budget, prepared at the beginning of a fiscal year, all funds which may be expended for the library during the year. Additional funds may become available. These funds, however, can be added to the budget during the year.

If it is desirable or legally necessary to carry expenditures for the law and experiment-station libraries on the budgets of the law schools and experiment stations, it should be possible to indicate these entries also in the library budget and to show in the financial statement under library expenditures the amount spent for these libraries. This method is used in the excellent financial report of the University of Illinois.

The budgetary conditions in many institutions, in so far as the libraries are concerned, may have arisen also from the inadequacy of the funds made available directly for library purposes and the desire of departments to supplement such funds by the use of their own allotments. In some cases unexpected departmental balances during the closing months of the year have been used for the purchase of books. In other cases, when a department desired a departmental librarian and the library had not sufficient funds, the assistant was supplied by the department.

However justifiable the immediate motive may be, it is believed that the failure in many institutions to show exactly all expenditures for library purposes is unsound. If departmental funds are available for library purposes at any time during the year, these funds should be transferred from the department budget to the library budget. The heading "library expenditures," in the financial re-

port should certainly show all expenditures for library personnel, books, periodicals, and binding (not including, of course, laboratory manuals for laboratory use).

TABLE 5.—*Library expenditures, 1928*

Institution	Number of students [1]	Library expenditures	Library expenditures per student	Ratio of library expenditures to total expenditures
1	2	3	4	5
Alabama Polytechnic Institutue	1,610	$8,384	$5	0.8
Alaska Agricultural College and School of Mines	64	819	12	.8
University of Arizona	1,740	29,168	17	2.8
University of Arkansas	1,555	53,733	35	4.7
University of California	17,005	331,004	19	4.0
Colorado Agricultural College	1,160	19,218	17	2.2
Connecticut Agricultural College	509	7,022	14	.8
University of Delaware	707	11,346	16	2.5
University of Florida	1,904	37,624	20	2.3
Georgia State College of Agriculture	1,084	7,399	7	.9
University of Hawaii	666	22,429	34	5.8
University of Idaho	1,912	23,631	13	2.3
University of Illinois	12,033	221,870	20	3.6
Purdue University	3,623	31,215	9	1.0
Iowa State College	4,033	99,121	25	3.0
Kansas State Agricultural College	2,825	53,250	19	2.5
University of Kentucky	2,393	34,636	14	1.9
Louisiana State University	1,970	38,170	20	2.8
University of Maine	1,346	18,448	14	2.0
University of Maryland	2,660	22,467	----------	1.5
Massachusetts Agricultural College	593	17,854	30	1.7
Massachusetts Institute of Technology	2,712	44,747	16	1.7
Michigan State College	2,741	33,455	12	1.4
University of Minnesota	11,050	288,079	26	5.2
Mississippi Agricultural and Mechanical College	1,397	11,092	8	.9
University of Missouri	4,421	75,978	17	2.7
Montana State College	905	10,122	11	1.4
University of Nebraska	6,340	78,463	12	2.7
University of Nevada	984	13,415	14	2.8
University of New Hampshire	1,658	21,197	13	2.5
Rutgers University	2,685	39,925	15	1.9
New Mexico College of Agriculture and Mechanic Arts	292	4,175	14	1.0
Cornell University	5,671	82,249	15	1.4
North Carolina State College	1,432	22,300	16	1.5
North Dakota Agricultural College	1,059	16,551	16	1.7
Ohio State University	10,183	159,784	16	3.5
Oklahoma Agricultural and Mechanical College	2,500	27,073	11	1.9
Oregon Agricultural College	3,762	47,049	13	2.6
Pennsylvania State College	3,854	27,501	7	.9
University of Porto Rico	1,279	17,251	13	3.0
Rhode Island State College	626	2,559	4	.7
Clemson Agricultural College	1,212	9,878	8	1.7
South Dakota State College	908	10,550	12	1.1
University of Tennessee	2,725	54,611	20	3.6
Agricultural and Mechanical College of Texas	2,444	15,129	6	.6
Agricultural College of Utah	980	8,877	9	1.4
University of Vermont	1,219	10,436	9	1.4
Virginia Agricultural and Mechanical College	1,251	12,317	10	1.0
State College of Washington	2,685	39,212	15	2.5
West Virginia University	2,459	25,827	10	1.3
University of Wisconsin	8,942	109,151	12	1.9
University of Wyoming	1,044	27,857	27	3.7

[1] Number of students was taken from the U. S. Bureau of Education Bulletin 1929, No. 13, p. 30, and the figures used were the enrollment on Oct. 31, 1927.

In the case of library expenditures other than books, periodicals, and services there is not the same difficulty. The upkeep of the library building, janitorial service, heat and light are in practically all cases not charged against the library budget. This practice appears to be uniform and consistent among the different college departments. The budget headings against which are entered charges for permanent library equipment other than books vary considerably. In some cases these items are entered under the library budget, in other cases under such headings as "Equipment" and "Communication." This practice causes some confusion in a few cases. The more general custom seems to be to consider permanent equipment as capital expenditure and not as a part of library administration or support.

In this discussion of "Financial support of libraries," and in Table 5 an attempt is made to include under library expenditures all expenditures for library personnel, books, periodicals, and binding for all libraries on the campus. Permanent library equipment is not included.

By Whom Are Library Budgets Prepared?

In nearly all cases (40 out of 46 who reported data) the library is responsible for the preparation of the library budget. In two cases the responsibility is given to the library committee, and in four cases to the library committee and the librarian.

There is more variation in the routine of the submission of the budget after it is prepared. In 20 of 48 reporting institutions the budget is submitted directly to the president. In 15 institutions it goes to the library committee for approval and in 13 cases to various officers (dean, business manager, etc.).

If the librarian is capable, he will be in possession of the facts needed to draft the original budgetary recommendations. The library committee, with its knowledge of instructional needs, may be able to assist and support. But the chief responsibility should be the librarian's. If he is not capable of assuming such responsibility, he should be replaced by one who is competent.

It is recommended (*a*) that all contemplated expenditures for personnel, books, periodicals, and binding for all libraries connected with the institution be shown on the library budget and in the financial report; (*b*) that any funds on department, station, or school budgets expended during the year for library purposes be transferred and indicated in the accounts as a transfer to the library budget; (*c*) that the financial report show under library expenditures all expenditures for library purposes; and (*d*) that the budgetary recommendations for library service be prepared by the

librarian and submitted directly to the president or other budgetary officer.

Growth in Library Expenditures

The remarkable growth in financial expenditures of many libraries of the land-grant college group shows an increasing realization of the importance of the place of the library in the educational program of the land-grant college. Rutgers has increased its expenditures from $1,560 in 1910 to $39,926 in 1928 (2,500 per cent); Oregon State Agricultural College from $4,027 to $27,046 (572 per cent); University of Kentucky from $2,600 to $34,636 (1,232 per cent); and Louisiana State University from $7,452 in 1910 and $11,040 in 1920 to $38,700 in 1928 (419 per cent since 1910 and 250 per cent since 1920). It is noteworthy that the presidents of three of the institutions which have shown the greatest increases in library expenditures have strongly expressed the need for considerable further increases in the future. Much growth is noted in recent years and over a relatively short period of time. The University of Florida spent for library purposes in 1927, five times as much as in 1920. Louisiana State University and the University of Maryland have tripled the expenditures for their libraries since 1920. The University of Kentucky and Clemson Agricultural College have doubled. A few institutions show no increases since 1920.

In the consideration of the growth of libraries, the growth of the institution must be considered. It should be remembered that the budgets of the various colleges listed show from two to six times more funds available in 1928 than in 1910. If the library expenditures have doubled since 1910 and the college expenditures have increased fourfold, the library is probably not keeping up with the growth of the college, even if library facilities were fairly adequate in the earlier year.

A large growth in library expenditures does not necessarily mean that the present expenditures are satisfactory for library purposes. The original basis in 1910 may have been so low as to be almost negligible. One institution, for example, which has increased its library expenditures 2,600 per cent, started from a basis of $1,560 spent on its library in 1910. Its library has certainly developed greatly, but it is known that the administration and faculty of this institution do not regard their library service even yet as entirely satisfactory. Indeed, it is those institutions which show the greatest increase in library expnditures that are most actively planning still further development of their libraries.

A study of the growth of library expenditures as compared with services rendered and with the growth of the institutions indicates: (*a*) That a few (four or five of those reporting) of the land-grant college libraries have received fairly adequate support during the past 20 years; (*b*) that a much larger number (the emerging libraries) have lately increased their expenditures rapidly and have started a period of development; and (*c*) that there are still many libraries (the submerged class) whose expenditures have not increased sufficiently to enable them to function at all adequately.

Factors Which Govern Library Support

What does an efficient library cost? Upon what factors does the cost depend? How should the library funds be distributed between personnel, books, periodicals, and binding? How do the land-grant institutions as a whole compare with other classes of institutions in relation to their library expenditures? What bases can be used for judging the expenditures necessary to meet the needs of libraries?

Direct comparison of total expenditures for library purposes by land-grant institutions is futile. The library needs for a college of 500 students are quite different from the needs of a university of 10,000 students. The number of students at a college will directly affect the requirements for financial support of the library. The financial needs of the library also have a direct relationship to the extent of the instructional and research work which in turn depend largely upon the operating funds available.

The relationship of library expenditures to the number of students and the percentage of the total operating expenditures devoted to library service seem, therefore, of more importance in a study of the status of a group of libraries than a direct comparison of library budgets in themselves. A study of library expenditures for all institutions can not be satisfactorily made, however, until all report under the heading "Library expenditures," all expenditures for library purposes and until there is a general agreement as to what is meant by the term "student." If the term signifies a full-time student, what allowance shall be made for part-time students? Until accounting methods are more satisfactory and definitions more exact, calculations of library expenditures per student and of ratios of the library expenditures to total instructional and research budgets must be used with great caution. These calculations are used in this survey, however, since they do give a general approximation for most land-grant institutions of the comparative expenditures for library purposes in relation to numbers of students and general budgets.

Library Expenditures Per Student and Relations of Library to Total Budget

Several attempts have been made by various authorities to ascertain (*a*) what is being spent in various colleges for library service per student, (*b*) what is the present percentage of the total budget used for library purposes, and (*c*) what should be the proper amount per student and the proportion of institutional funds which should be allotted to library support.

A study of actual library expenditures of 59 teachers' colleges, by Dr. G. W. Rosenlof, gives an average of $9.52 spent per student for library purposes and a ratio between the library budget and the total budget varying by groups from 2.92 per cent to 4.43 per cent. The study lays down definite standards as follows:

> Each teachers college of less than 1,000 students shall apportion to the library not less than 7 per cent of the entire college budget, exclusive of capital outlay. Each teachers college of more than 1,000 students and less than 1,500 students shall apportion to the library not less than 6 per cent of its total college budget, exclusive of capital outlay. Each teachers college of more than 1,500 students shall apportion to the library not less than 5 per cent of its total college budget, exclusive of capital outlay.[40]

The methods by which the figures of 5 per cent and 7 per cent are arrived at are not stated.

A committee of the American Library Association attempted to arrive at tentative figures by means of a questionnaire to members of faculties, graduate students, and others who were familiar with libraries in various institutions. "Those libraries, whose services to the faculty and students were considered above the average of the group, were marked with a plus; those below average were marked with a minus. It was found that those which were generally checked as above average had an income in practically every case equal to or in excess of $25 per student ($20 per student in universities of more than 8,000). The income was also more than 4 per cent of the total income of the university, as defined in the specifications. On the other hand, all which were checked minus, with two exceptions, fell below one or the other of these standards." The income of the university was defined as excluding additions to endowment, funds for new buildings, and other capital expenditures, athletic funds, etc. The number of students included the total number of full-time students registered at one time.[41]

Dr. T. W. Koch, of Northwestern University, some years ago made a study of the relation between library and university expenditures in 16 selected universities. The figures reported varied from

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[40] Rosenlof, G. W. Library facilities of teacher-training institutions. Teachers College, Columbia University Contributions to Education No. 347. New York, 1929, p. 152.

[41] A. L. A. Committee on classification of library personnel. Budgets, classification, and compensation plans for university and college libraries, 1929, p. 4–5.

a minimum of 2.5 per cent to a maximum of 11.4 per cent with an average of 4.9 per cent.[42]

Prof. W. P. Lewis, of the University of New Hampshire, stated that the average expenditures for library purposes of 14 New England colleges were 3.3 per cent of the total institutional budgets, including nonoperating expenses. These nonoperating expenses apparently included capital expenditures which are not included in the figures of the American Library Association nor in the figures of the land-grant colleges given later in this report. If the capital expenditures were excluded, the ratio would be much higher. The per capita student cost for these 14 New England libraries was $23.69.[43]

A standard of library expenditures per student and a definite ratio of library expenditures to total budget can not be fixed without an individual study of the widely different conditions at various institutions. There is certainly, however, a minimum amount below which expenditures can not go and still make possible good library service. Above this minimum, the amount needed must be determined by study of the needs of the individual institution.

Table 5 gives an estimate of the library expenditures per student and the ratio of library expenditures to the total expenditures of land-grant institutions, not including capital outlays, etc. Great caution must be exercised in using these figures or in drawing definite conclusions from them. Rutgers University does not report the expenses of its library for the New Jersey College for Women. Maryland does not show its expenses for libraries in departments at Baltimore, and expenditures for these departments, as well as the number of students in Baltimore departments, are necessarily excluded in the figures. Several other institutions could not report all their library expenditures. In so far as posible, however, the column of library expenditures shows all library expenditures of the institution.

It will be noted that several land-grant institutions are meeting the American Library Association proposals as just given. The University of Hawaii shows $34 expended per student for library purposes, a ratio of 5.8 per cent for its library. The University of Illinois, with a large enrollment, shows $20 expended per student and a ratio of 3.6 per cent. Massachusetts Agricultural College, with a small enrollment, shows $30 expended per student. The University of Wyoming shows $27 per student with a ratio of 3.7 per cent.

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[42] A. L. A. Survey of libraries in the United States. Chicago, 1926, vol. 1. p. 211.
[43] Library Journal, 51: 576, Jan. 15, 1926.

In 10 institutions less than $10 per student for library purposes is spent; 33 are spending between $10 and $20 per student for library purposes; and 8 in excess of $20.

If the ratio of library to total noncapital expenditures be considered, 8 out of 45 institutions spend on their libraries less than 1 per cent of the total expenditures; 20 are spending between 1 and 2 per cent; 14, between 2 and 3 per cent; 6 between 3 and 4 per cent, and 4 are spending 4 per cent and more. Forty-two land-grant institutions are not spending on their libraries as great a percentage of their total funds as does the minimum groups of teachers colleges in Doctor Rosenlof's study, although Doctor Rosenlof states that the amount so spent in teachers colleges is greatly inadequate. Only four are meeting the recommendation of 4 per cent made by the American Library Association. Only 7 of the land-grant institutions equal the average ratio of the 14 New England colleges studied by Mr. Lewis and only 2 exceed the average of Doctor Koch's selected group of universities. More than half of the land-grant institutions are not spending on their libraries as great a percentage of their total expenditures as the institution with the lowest percentage in Doctor Koch's group.

A comparison of one land-grant institution serving 500 students with Amherst College, a liberal arts college serving 700 students, may be of interest as showing two extremes in library service. The first has an institutional budget 50 per cent higher than the second, but is spending not more than 1 per cent on its library, as compared with 7 per cent by Amherst. The first institution has a librarian and two assistants. The second has a librarian and the equivalent of at least 11 full-time assistants. The first institution spent in one year slightly more than $1,000 for 306 books. Amherst spent $10,000 for about 3,000 books. The first institution is spending $14 per student on its library. Amherst is spending more than $50 per student. The reports on service in the library of the first institution are very critical. The reports from Amherst by both faculty and students are unusually commendatory. A still more extreme case is an institution with an enrollment of 1,000 students which has two library attendants, and an annual expenditure of $1 per student for new books.

It is apparent that the present financial support of many land-grant institutions is insufficient to permit of good library service. One institution, with a student body of more than 1,500, reports annual library expenditures of about $10,000; another, with an enrollment of about 2,400, reports less than $15,000 for its library; a third added to its library in one year 425 purchased books for 500

students and subscribed to 86 periodicals at a cost of $404. A fourth had sufficient funds to purchase only 122 books last year with paid subscriptions to 85 periodicals (including annuals) and employed but one full-time worker in the library. It is obvious that a library can not function properly with such financial support.

It is not known whether it is a land-grant institution which "advertises a million-dollar recreation building containing three gymnasiums, a swimming pool, squash courts, bowling alleys, and a golf course and possesses a library containing 7,500 volumes."[44] Corresponding cases, however, nearly as extreme, can be cited from several of the land-grant institutions. In some institutions, hundreds of thousands of dollars for a new stadium does not seem to be inconsistent with a library building with 96 seats for a student body of 1,200, nor with annual expenditures of $10 per student for library books.

It was noted in Chapter I on the Usability of Libraries, that libraries which showed considerable use include those with the larger library expenditures per student and the larger percentages of college funds expended for library maintenance. The converse also held. The failures of libraries to function are generally closely related to and in most cases caused by a lack of financial support.

The statement is often made in regard to inadequate library development that a given college " does not have the funds available for its library which other colleges and universities enjoy." In colleges with undeveloped libraries, the cause for inadequate service is not a lack of institutional funds. The actual fact as shown in this survey is that land-grant colleges and universities with undeveloped and little-used libraries have alloted for library purposes a much smaller proportion of their funds than do institutions with well-developed libraries. All institutions may not have the total operative funds which the University of Minnesota, as an example of a large institution, or the University of Hawaii, as an example of a small college, receives. But few land-grant colleges and universities allot from the available funds the 5.2 per cent which Illinois or the 5.8 per cent which Hawaii allots. It is not a case of lack of funds available to the institutions; it is a failure to allot to the library the same percentage of these funds which other institutions with highly developed libraries have found desirable. The failure of so many libraries in land-grant institutions to function, the pitiful showing made by their inadequate book collections, and the poorly equipped, understaffed and underpaid library personnel can be laid directly to the failure of administrators to apportion for library purposes the same

[44] Robertson, D. A. *In* Educational Record, 10 : 24, January, 1929.

proportion of their funds which college administrators with adequate library service have done.

The facts given in the preceding paragraph, considered in connection with the portions of this report dealing with "Books and Periodicals" and "Personnel," clearly indicate that (*a*) the libraries of most land-grant institutions as compared with other groups of colleges have inadequate financial support, (*b*) the expenditures for library purposes are not sufficient to provide for adequate book collections and personnel, and (*c*) the lack of funds for library purposes is due to the failure to allot to the library as large a percentage of funds available to the institution as do the institutions with well-developed libraries.

It is recommended: (*a*) To all land-grant institutions, that careful attention be given by the individual institution to the question whether the financial support of the library has been consistent with and sufficient for the needs of the educational and experimental work of the institution; and (*b*) especially to such institutions whose library budgets are below 4 per cent of the total college budget or less than $20 per student, that they consider carefully the question as to whether the library is meeting the demands made upon it, and if so, whether the faculty is following the accepted methods in education as noted in the introduction to the library section of this survey.

Library Fees

Fourteen of the reporting land-grant institutions charge a special library fee. This fee varies from $1 to $5 per year. Six institutions charge $5. In two cases attempts are apparently made to cover the library expenses solely by means of funds received from such fees. A tendency is noted in certain institutions (Rutgers University and Iowa State College) to abolish all special fees, combining them into one. Special difficulties arise when the library is solely or chiefly dependent upon fees for its support. These fees are not sufficient in amount to provide adequate service.

The library is a necessary and integral part in the educational and research work of the whole institution. It should serve every instructional and every research department. There is grave danger in regarding library service as distinct from the educational and research fields and as a service which must be met by a special charge. Laboratory fees may be justified as applicable only to certain classes of students, athletic fees may be defended as used for extracurricular activities. Library fees, however, do not belong to either of the aforementioned classes. As a necessary part of the educational work of an institution, the library should be recognized as entitled to a

certain proportion of the funds appropriated by the State for educational purposes, to a certain proportion of the regular tuition charges, and to a certain portion of the research funds.

Distribution of Library Expenditures

What is and what should be the distribution of the funds available for library purposes for personnel and books? Statements have been made that the college library hardly ever spends as much for service as for books. The reports indicate that in nearly all cases land-grant institutions spend more for services than for books and that, in a majority of institutions with insufficient library support, books have suffered equally with personnel.

The actual distribution of library expenditures of 14 New England colleges was 38 per cent for books, periodicals, and binding; 56 per cent for salaries; and 6 per cent for incidentals.[45] Doctor Rosenlof's recommendations for teacher-training institutions are 55 per cent for salaries and wages; 35 per cent for books, periodicals, and binding; and 10 per cent for incidentals.[46] Prof. W. M. Patton suggests that 40 per cent of the total expenditures be used for books.[47] In general, authorities agree that about 50 per cent more should be spent for salaries and wages than for books, periodicals, and binding.

In most of the land-grant institutions with large expenditures it will be noted that salaries and wages vary from 50 per cent to 60 per cent of the total budget, while books, periodicals, and binding run from 40 per cent to 50 per cent. In many institutions with small library expenditures salaries and wages are more than double the amount spent for books. Apparently a minimum amount of service is required in these institutions, merely to keep the libraries open, and little funds remain after that minimum is used. In a majority of land-grant institutions larger funds are needed for both books and personnel.

Relationship of salaries to wages—Student assistants.—Many institutions are taking advantage of the opportunity to employ students (both graduate and undergraduate) for the clerical work at comparatively low rates, thus releasing the professional library staff for professional duties. The universities of Minnesota and Florida and Iowa State College are spending one-fifth of their personnel budgets for assistants on an hourly basis; Arkansas, one-sixth; Illinois, one-seventh; Wisconsin, one-eighth. The percentage which can be spent wisely for such services would seem to be limited to about the aforementioned figures. One college, which is spending well over one-

[45] Library Journal, 51: 576, June 15, 1926.
[46] Library facilities of teacher-training institutions, 1929, p. 153.
[47] Libraries, 31: 155, March, 1926.

fourth, reports that this amount of student help is too large for satisfactory results. Many other institutions, however, use this form of service to a very limited extent, one-twentieth in some instances. Satisfactory student assistants can ordinarily be obtained readily and are capable of doing much of the routine work. Furthermore, many librarians found their life work as a result of their employment as student assistants in college libraries. This employment offers a valuable opportunity to secure desirable recruits for librarianship.

It is recommended that in most institutions equal attention be given to the further development of both personnel and books. It is also recommended that librarians employing comparatively little student help give consideration to the use of this form of service.

Summary

The one outstanding fact in the financial support of libraries of land-grant institutions, which requires emphasis to the exclusion of all others, is the inadequate financial support of the group as a whole.

More than 50 per cent of the libraries in the land-grant college group are receiving less than half the funds deemed necessary for adequate service, some less than one-fourth.

The lack of funds in these institutions is due directly to the failure of administrators to allot for library purposes the same proportion of institutional funds which is allotted in institutions with satisfactory library services. Until sufficient funds are allotted the library service in most land-grant institutions will remain inadequate for instructional and research needs. If the many authorities, a few of whom have been quoted, are correct in their statement of the dependence of adequate instruction and research upon library service, the value of the instruction and research in many land-grant institutions, as compared with other institutions, is open to serious question, as are the instruction and research in the group as a whole as compared with the group of 14 New England colleges or the group of 14 colleges and universities, surveyed by Doctor Works.

Chapter IX.—General Conclusions

This study has been based on the conception, stated repeatedly by leading educators and research workers, that an effective library is essential for the instructional and investigational work of every institution of higher education. This conception is no longer considered open to question. The statement in the conclusion of Doctor Rosenlof's study of libraries of teacher-training institutions applies with equal force to land-grant institutions.

> It has not been thought within the province of this study to challenge the place of the library in its relation to the newer theories and conceptions of educational philosophy or of the educative process. The newer methods of teaching and learning, the passing of the textbook as the only source of information, and the coming of the new approaches to learning through the avenues of many supplementary reference materials have been accepted as prima facie evidences of a new day and a new responsibility in the field of library service.[48]

The five requirements for good library service have been stated in the introduction to this study, as follows: (1) Adequate book collections; (2) suitable buildings and equipment; (3) satisfactory relationships of library to institutional administration and to faculty; (4) competent and sufficient library personnel; and (5) adequate financial support.

As a preliminary to a study of the extent to which these requirements are met by land-grant institutions attention was also given to the use at present made of libraries. The following summary of recommendations under these headings is offered as a means for the improvement of service of libraries of land-grant institutions.

Summary of Recommendations

Use of libraries.—(1) More attention should be given to the individual reader in order to see that he obtains needed material.

(2) Librarians should make additional studies, statistically and otherwise, of the use of their libraries, and especially of failures of students and faculty to obtain adequate service.

(3) Further studies by librarians are also needed to ascertain factors which affect present development and should direct future growth.

[48] Rosenlof, G. W. Library facilities of teacher-training institutions, 1929, p. 150.

Books and periodicals.—(1) The selection of books should be organized; all instructors should see that the needed material in their fields is available. The final responsibility should be placed upon the librarian.

(2) Inasmuch as it has been found that institutions with well-used libraries are expending not less than $10 per student for books, periodicals, and binding, this amount is suggested as a tentative standard. This need is shown by the pitiful condition of the book collections in more than one-half of the land-grant institutions.

Buildings.—(1) Institutions which have not erected library buildings within the past 10 years should make a careful study to determine if their present buildings are fully conducive to the satisfactory use of books.

(2) In the erection of buildings in the future much more attention should be given to the use to be made of the building. Adequate provision should be made for future growth of the library and enlargement of the building.

Administrative control.—The control of all libraries on the campus should be placed directly upon the librarian, who should be responsible only to the president for their administration. All purchases of library books and all appointments of library assistants should be made only upon his recommendation.

Personnel.—(1) The library staffs of many land-grant institutions should be enlarged. The number of persons found necessary by well-used libraries is 5 for the first 500 students, 10 for the first 1,000, and 4 additional for each additional 500 students. Part-time assistants are to be included and are to be figured on the basis given in this report.

(2) For all future appointments to positions on the professional staff of the library a college degree and one year of library school should be required. In addition, adequate experience in scholarly, well-used libraries is recommended for all positions except those of junior assistants. More extensive educational and professional qualifications should be required for the higher positions.

(3) Salaries of librarians should correspond with the average salary paid academic deans or the salaries paid the most highly paid group of full professors. The salaries of heads of library departments should correspond with the salaries of assistant or associate professors.

(4) Many library staffs need reorganization. The present members of those staffs should be given positions for which they are qualified; new members should be appointed at salaries based upon the requirements of the positions and the qualifications of the appointee.

(5) There is need of a clear understanding of the duties of professional library assistants and a distinction between the duties of the professional and clerical staffs.

Financial support.—In more than three-fourths of the land-grant institutions much increased financial support is needed. In the group of libraries with the least use and smallest support the library budget should be increased to about four times the present amount. Institutions which are allotting less than 4 per cent of their funds for library purposes or which are spending less than $20 per student should carefully examine the use made of their libraries, the adequacy of the book collections, and the efficiency of the personnel as compared with libraries with larger ratios of expenditures.

Need for Better Understanding

The failure of administrators to allot for their libraries a sufficient amount to enable the library to function effectively may be caused by: (1) A lack of knowledge of what constitutes adequate library facilities. (It is hoped that the recommendations given in this survey will contribute to a knowledge of the facilities needed for good library service.) (2) A failure fully to appreciate the place of the library in the educational system.

The relation of the library to the educational system has been emphasized. As a final summary, it is desirable to give an additional statement of the necessity for adequate library service if the research and instructional activities of the land-grant institution are in any way to approach desired objectives.

Klauder and Wise, from the standpoint of the library building, make an excellent statement of the library's needs which is applicable not only to the building but to all elements in the development of libraries.

> The library is the intellectual central power plant of the college or university. It is related to all departments and it must keep pace with all departments in supplying to each branch of study the books and references needed. Hence the library must be sensitive to the expansion of any teaching unit of the institution. If a new department is added, there must be a corresponding increase in the library's volumes; and this means, if there is not space for the addition of new stacks within the original building, an increase in the size of the structure itself. Thus it is seen that the comparison of the library with the central heating plant is not merely figurative, for the heating plant must increase its service as soon as a new building with its additional "load" is erected.[49]

This statement presupposes that the "power plant" is sufficient for the original load. This implication, however, does not hold in many libraries of land-grant institutions.

[49] College architecture in America, 1929, p. 170.

PART IX.—AGRICULTURE

Chapter I.—Introduction

Legislative provision for colleges of agriculture had been made in a number of States before the land-grant college bill was passed in 1862. This was the case in Michigan (February 12, 1855); Pennsylvania (April 13, 1854), amended (February 23, 1855); and in Maryland (March 6, 1856), amended 1858. Pursuant to such legislation, agricultural colleges were established and opened their doors for enrollment in Michigan, May 11, 1857; in Pennsylvania, February 16, 1859; and in Maryland, September, 1859. Definite movements toward the establishment of colleges in which agriculture was to be taught were on foot in New York in 1853, in Ohio in 1854, and in some other States during the early fifties, and in some instances preliminary steps for their organization had been taken. However, the land-grant act crystallized the thinking of the leaders of the time as to the type of education that had most promise for the welfare of the industrial classes, of agriculture as an industry, and of society as a whole.

It is clear from the land-grant act itself and from interpretations placed upon it by Mr. Morrill that the emphasis in education by the institutions under this act should be on science that might be applied in practical life and not on the humanities which had been emphasized in the colleges up to that time. It was not the thought that the humanities should be discarded or neglected, but that the sciences relating to the affairs of every day should receive major attention and that the scientific attitude should be encouraged.

Further, the land-grant act made it clear that in the future education was not to be for the well-to-do classes alone. The agricultural and industrial classes were to have an equal opportunity for higher education. That science should be used as the basis of this new education and that it should be made so democratic that everyone might have an opportunity to attend a college, constituted a marked departure from the accepted conception of higher education.

Educators generally were contemptuous of the land-grant college movement and of science as a medium of educational value. They were entirely unsympathetic with the idea of universal education or

of education for anyone except the predestined leaders of society. In the words of Dean Eugene Davenport:

> Science at this time had no standing among educators. It was considered incapable of giving mental training and discipline and at best was looked upon as a commercializing of education.
>
> Not a few, too, held to the old doctrine that one of the chief purposes of education is to create an educated class for leadership, and any attempt to educate the masses is an attempt to educate the incapables, or if it should succeed it would only deprive us of the hewers of wood and drawers of water, making the masses "dissatisfied with their lot" and leaving nobody to do the "rough and menial labor of the world." The extent and intensity of these views and their bearing upon the education of the times are now incapable of realization.

Objectives and Aims in Agricultural Education

While the provisions of the land-grant act were clear and were ably interpreted by Representative Morrill and others, its intent was not fully understood during the early history of the colleges established under its provisions. Ruling boards and administrators in several of the colleges thought vocational training should receive primary emphasis in the new system of education. In the State legislation applying to some of the institutions provision was made that students should perform manual labor on farms or in shops for a certain number of hours a day or during certain periods of the year. The legislative act for the establishment of the Michigan Agricultural College (1855) specified:

> The board of education, upon consultation with the board of instruction, shall from time to time, fix and establish rules as to the number of hours which shall be devoted to manual labor and to study, which may be different in different terms or seasons; but during the first term in each year, the time devoted to labor shall not be less than three nor more than four hours each day; and no student or pupil of said college shall be exempt from such labor, except in case of sickness or other infirmity.

Similar provision was made by Tennessee, which specified that all able-bodied students were to work two hours a day on the farm.

Since the Michigan College was the first agricultural college in the United States its policies and conduct naturally were examined widely and were influential in shaping public opinion when other land-grant colleges were established. Moreover, agricultural science was not in existence during the early period of agricultural education. Although the sciences of chemistry, entomology, geology, biology, and botany had attained considerable development, their application to agriculture had not progressed far. The early teachers of agriculture, therefore, necessarily talked and lectured about the practice and art of farming rather than about the application of science to agriculture. Agricultural students were given vocational

practice work which in only the slightest degree could be regarded as of laboratory character.

No one who looks carefully into the history of land-grant colleges can fail to be impressed by their early struggles, by the groping character of educational policies, by the changing point of view of successive administrations, and by the progressive evolution of their objectives. Should agriculture be taught in the colleges specifically and primarily to make good farmers? Some administrators and faculties believed so and fought for the idea. Should it be taught primarily from a professional standpoint to develop teachers and leaders? This point of view was held by many. Much argument, much debate, and much shifting of institutional policies resulted.

Then came the agricultural experiment stations and with them a gradual building up of a body of agricultural science which helped to clarify thinking about the place that the agricultural institutions should hold in the educational system. The first of these experiment stations was organized in Connecticut in 1875. It was followed by 16 others in as many States within the next 10 years. The Federal Government was appealed to for funds for agricultural experiment station work in the several States and the Hatch Act of 1887 was the result. Many of the teachers who had training and experience in the basic sciences were eager to do experimental work relating to agricultural applications. Agricultural science now began to develop and brought new life to the work of teachers and students alike. Progress, at first slow, accelerated as the institutions caught the spirit of research and experimentation and as more funds became available from State and Federal sources. The colleges whose early practice it had been to emphasize strictly vocational teaching now acquired scientific information about plants and animals, soils, and management which fitted into the scheme of education of college grade intended by the land-grant act. Those in administrative authority in the colleges came to understand better the meanings and implications of the act.

The Federal Smith-Lever Extension Act in 1914 made specific provision for extension work in agriculture and home economics. The Smith-Hughes Act of 1917 further made possible agricultural teaching in the high schools for young men interested in the vocation of farming. As a result the land-grant colleges are now in a position to emphasize work of college grade, work dealing with basic sciences and agricultural science. On the other hand, no land-grant college curriculum in agriculture in 1927–28 specifies that the work shall consist exclusively of agricultural subjects. The sciences basic to agriculture, and the subjects of economics, sociology, English, and military education constitute more than 60 per cent of the subject-

matter offered in the majority of the 4-year agricultural curricula to-day.

Simultaneously with the development of agricultural science, thinking about the purposes and objectives of agricultural education was clarified. While many outside of the colleges still have but a hazy notion, those responsible for the management and policies of these institutions have fairly clear conceptions about the aims and purposes of the work entrusted to them. This understanding has been promoted by annual conferences of the administrative officers of these institutions, at which objectives, aims, and purposes of agricultural education have been debated and discussed from many angles. Opinion has, therefore, crystallized to a point where a remarkable similarity of general objectives will be found in entirely different parts of the country. Almost invariably these objectives will be defined in terms of a broad education with specific training for work in the agricultural field and for service to society.

General aims.—The following are representative statements of the general aims as given by the catalogues of various institutions:

> The 4-year plan of study offers an opportunity for a broad scientific education and for a certain amount of specialization in some chosen field of agriculture. * * * While the agricultural courses are designed to train students for the farm and life in the country they offer also an opportunity for a very broad, well-balanced education and at the same time may serve to fit men for a variety of very excellent positions in educational, scientific, and commercial work in connection with institutions and industries closely allied with agriculture.—PURDUE.

> The object of this instruction is to train men and women for success in the vocation of agriculture. The college aims to educate farmers, farm managers, fruit growers, grain growers, dairymen, poultrymen, and stockmen. It prepares men for responsible positions as teachers in agricultural colleges, investigators in experiment stations, for extension work in agriculture and home economics, as teachers of vocational agriculture, and for service in the United States Department of Agriculture.—MISSOURI.

> The regular 4-year course in agriculture has as its main objective the preparation of young men for the business of farming, for the pursuit of scientific investigation along some line of agriculture, for becoming county demonstration agents or extension workers, and for teaching in the high schools and agricultural colleges, and affords excellent preparation for young men who intend to follow business pursuits, especially for merchants and bankers.—TEXAS.

> Our 4-year curriculum has two outstanding aims, preparation for actual farm management and preparation for rural leadership. We are not aiming to prepare scientific investigators, but say to all who enter the field of investigation that they must do graduate work. Since ours is a pioneer State it needs rural leadership. Our curriculum aims to train men to become county agents and teachers of vocational agriculture in Smith-Hughes high schools for these workers stand in positions of leadership.—NORTH DAKOTA.

It is the aim of the 4-year curriculum to train persons going into farming and into professions closely related to agriculture.—CORNELL.

The primary aim of the college in training men in agriculture is to fit them for service in which they will develop into agricultural leaders, either as farmers or in some other capacity, and as such, contribute to the up-building of rural institutions and the improvement of American country life.—KANSAS.

The aim of the 4-year curriculum is to provide such training in the scientific agriculture and the cultural subjects as will best prepare graduates to engage in the pursuit of practical agriculture or related activities and to furnish the background and foundation for research or teaching.—MINNESOTA.

The aims of the college of agriculture are: (*a*) To give students a broad, liberal education with agriculture as the basis; (*b*) to prepare them for the agricultural profession, especially for the farm and for business closely related to agriculture; (*c*) to develop the ability and the desire to lead; and (*d*) to foster a spirit of service to society.—WASHINGTON.

Specific aims.—Specific aims of agricultural education were given by some 40 institutions participating in this study. The majority of these specified preparation of persons for the following callings as a major objective of the 4-year curricula: Farmer, high-school teacher, county agent and extension specialist, florist, landscape architect, nurseryman, plant quarantine inspector, seed company salesman, sales manager for fertilizer companies, farm real estate agent, city milk inspector, rural banker, editor, and agricultural journalist.

Research and experiment station work in connection with the land-grant colleges, the United States Department of Agriculture, and commercial and industrial organizations where research is required is a specified aim of many institutions. In such cases it usually is made clear that to enter upon occupations of this character more than the four years' work in undergraduate agriculture is necessary. Graduate work over periods of from one to several years must be pursued in order to qualify for positions of this kind.

Preparation for such work as managing farm organizations, managing irrigation districts, serving as plant-breeding specialists with seed companies, and as technical workers with farm machinery manufacturers are other enterprises mentioned as specific aims by a number of institutions.

Within the past few years 4-year curricula entitled "agricultural business," "agricultural administration," and "agricultural economics" have been introduced by a number of institutions. The specified purposes of these curricula are preparation for rural banking, marketing of agricultural products, the appraisal, sale, and development of land, hardware and farm implement retailing, and agricultural journalism.

The examples of general and specific aims here given indicate clearly the comprehensive purposes of the regular undergraduate in-

struction in agriculture in the land-grant colleges from the educational, vocational, and professional standpoints. Broadly summarized, these purposes are: (*a*) To provide a well-balanced education built on agricultural and basic sciences with economics, English, and the arts as a background; (*b*) to prepare young men and women for interesting, useful, and remunerative work in the broad field of agriculture and agricultural business; and (*c*) to help them to become interested in and give service to society by successfully conducting the agricultural work and enterprises in which they are engaged.

Aims of short courses.—Shorter courses than four years are given in the majority of the agricultural colleges. Practically all of them, whether of college grade or subcollegiate, have specific vocational aims. They are intended for those who are eager to avail themselves of the opportunities for agricultural instruction but who, for one reason or another, are able to attend college for comparatively short periods only. Training is given in such work for the occupations of farmer, farm foreman, forest ranger, herdsman, gardener, florist, milk inspector, ice-cream maker, cheese maker, hay dealer, lumber dealer, and other vocations. Thousands of men and women who have taken such courses show in their daily vocations that the aims and objectives of this work have been realized.

Chapter II.—Organization

Purpose and type.—While there is much similarity in organization in all the land-grant colleges and universities there is one difference between them that is of major importance. In the typical university form of organization, one individual known as the dean of agriculture is usually responsible directly to the president for the agricultural work of the institution in the three fields of resident teaching, research, and extension. In the college type of organization three officers known as directors or deans of resident teaching, directors of research and of extension, are each responsible for one division of work. In a number of instances one of these officers is responsible to the president for two divisions, such as resident teaching and research. He then usually has the title of dean and director.

Where a dean of agriculture is responsible for all of the agricultural work of the institution it usually is necessary for him to have three officers reporting to him, each one directly responsible for the details of administration of one of the three divisions of work. They may have the titles of assistant deans, assistant directors, or directors, in accordance with the terminology that best fits the institution as a whole. Under this type of organization one of the important duties of the dean is to see to it that the work in the three lines of service under his supervision and direction is fully coordinated so that resident teaching, research, and extension function as one team for the best interests of the students and people of the State.

Where the college type of organization is used, the responsibility for coordination and teamwork in the three divisions rests directly on the president of the institution. Where his other duties are not too heavy for him to give ample time to this very important function and where his training, experience, and point of view are such that he naturally and easily performs it, this system is workable and effective. Where this is not the case there is little doubt that the agricultural work of the institution is best served if one officer is given the responsibility for the organization and coordination of the three functions of resident instruction, research, and extension.

Both in the college and university type of organization, the work of resident instruction in agriculture normally is further subdivided

into departments organized on the basis of subject matter, such as agronomy, animal husbandry, horticulture, etc. At the head of each of these departments is an officer known as a department head. The department head may be immediately responsible for all the work in the subject matter of the department in teaching, in research, and in extension, and all the workers in this field be members of the department. Where this is the case, the department head is responsible to the director of resident instruction for the resident teaching work, to the director of research for the research and experiment station work, and to the director of extension for the extension work. It is his duty among other things to coordinate all these types of work in his department. This is known as the departmental basis of organization and is in operation in 19 of 46 institutions reporting on organization.

In 22 institutions the divisional basis of organization is the primary one. Here the head of the resident subject-matter department is not directly responsible for all of the corresponding work in research and in extension. He may have direct charge of the resident teaching of his department alone, or of resident teaching and of one or the other of the two remaining phases of agricultural activity. Where the latter is the case, the department head is responsible to the director of resident instruction for the teaching work and to the appropriate director of research or of extension for the other portion of his departmental functions. The individual carrying on extension work in the subject matter of the department is known typically as the extension specialist and is primarily responsible to the director of extension.

The essential differences in the two plans may be stated as follows: Where the departmental plan of organization is primary, the department head is directly responsible for all the subject-matter work of the department whether in teaching, research, or extension. Where the divisional plan is primary he is directly responsible for only a part of the work in his subject-matter field, and coordination of the work in the various lines must be provided for in other ways.

In three institutions neither the divisional nor departmental basis of organization can be said to be primary, a combination of both being used. One of these is a large institution and two are small.

In whatever manner the institution may be organized, full coordination of work, of subject matter, and of policies in teaching, research, and extension is not only desirable but essential. Only where this condition prevails can the institution effectively serve its students, develop agricultural science, and be of the greatest help to the rural population through its extension and service work.

In addition to administrative organization other methods of coordination of the different lines of work in agriculture are employed. In 23 institutions the same or contiguous offices are used by those engaged in resident teaching, in research, and in extension in the various subject-matter fields. In 25 institutions formal and informal conferences between those in the three different lines of work are depended upon to secure coordination. In 13 the workers themselves are expected to arrange such informal conferences as seem to them necessary to teamwork.

In 24 of the 46 institutions under consideration the head of the subject-matter teaching department is responsible for the coordination of the subject matter presented by all the workers in his field in resident teaching, research, and extension, although the extension representative may be administratively responsible to the director of extension, and the research worker to the director of research.

Experience in many States indicates that the matter of coordination of the work of the research staff, the teaching staff, and the extension staff is an ever-present problem and that every means that can be used to harmonize the policies and the recommendations of these groups should be employed. There is no doubt that the use of the same or contiguous offices by all representatives of the same subject-matter field where contacts come naturally and informally between all the workers may contribute greatly to fine personal relationships, completeness of understanding, and agreement in recommendations. This is even more important in many States than the advantage of staff cohesion obtained by maintaining all members of the extension staff in offices at a distance from the departments whose subject-matter field they represent. Under whatever plan an institution is organized contacts formal and informal between the workers in all lines should be encouraged to the utmost by administrative officers and department heads.[1]

The departmental unit.—The first units for instruction in agriculture organized in the land-grant institutions were known as departments of agriculture or of horticulture.[2] A department of agriculture is now rare. It has been divided into several departments such as agronomy or farm crops and soils, animal husbandry, dairy husbandry, and poultry husbandry. Many new departments have been organized as the special fields of agricultural science have developed. As a result of the high degree of specialization almost

[1] See Vol. II, Part VII, "Extension services."

[2] At the University of Minnesota the entire agricultural unit is known as the department of agriculture. This, however, is a local provision and the "department" is divided into departments or divisions just as in other institutions.

120 different names are applied to departments in the agricultural units of the various institutions. The subject matter in many lines has been so divided into a large number of specialties that it is sometimes impossible for students in undergraduate years to take sufficient courses in any one department to get a comprehensive view of the entire field.

There can be no hard and fast rule on the basis of which departments should be organized. Local conditions of specialization in agriculture, of support of the institution, and sometimes of personnel, determine what these departments are to be. They should not be organized on the basis of the ambitions of certain members of the staff, of political considerations, or of the special interests of administrative officers. All of these may change while the institution goes on. The primary justification for the organization of departments is that they may contribute to the effectiveness of agricultural instruction in the institution, to the agricultural interests of the State, and to ease of administration. Evidence that departments in agriculture have actually been created upon such grounds is difficult to obtain. Forty out of forty-four institutions reporting on this point maintain that the relative development of the number of teaching units in their institutions corresponds to the development of the agricultural interests in the State, while 4 indicate that this has not been entirely the guiding principle. It may be seriously questioned whether multiplication of departments has not sometimes hampered instruction upon the undergraduate level and complicated administrative problems. It is certain that excessive departmentalization in some institutions has made extremely important the problem of creating devices of coordination both in the interests of unity of instruction and in the interest of simplified administration.

Similar departments in two or more divisions of the institution.—There has been a tendency in a number of instances to develop similar departments in two or more major divisions of the institution, such as chemistry and agricultural chemistry, botany and plant physiology, engineering and agricultural engineering. In some cases this is advisable and desirable. Where much of the agricultural work is located on different campuses, as at the University of Minnesota, the University of Nebraska, and the University of California, such parallel departmental organizations often are a necessity. However, it would seem to be possible and practicable even in such cases to maintain central departments, of which the units based on location are branches. This might contribute toward a close coordination of the work in the various subject-matter fields and tend to maintain a single common standard of scholarship.

Such organization in two or more major divisions of distinct units within a single field may be fully justified in the larger universities and colleges on the basis of the type of work done and the number of students taught, as well as on the different emphasis given to the subject matter. For instance, in an institution where there are thousands of students enrolled in chemistry from the college of arts and sciences, from the college of engineering, and from other major divisions, it may be advisable to segregate agricultural chemistry. Costs of equipment and of personnel may not be increased thereby. Instruction may be improved for students with a special interest. However, in the smaller institution where means are limited and students are comparatively few the organization of parallel departments in two or more divisions would not seem to be justified. In such institutions the work can usually be given the emphasis that will meet the needs of all types of student interest by means of individual attention to students and by wide understanding and sympathies on the part of instructors.

To avoid parallel departmental organization in two or more divisions many institutions resort to departmental organization on the basis of responsibility of one department to two or more major divisions. Thus, in 21 out of 43 institutions reporting, some departments of instruction are listed as of more than one college teaching organization. For example, agricultural engineering may be listed in the division of agriculture and in the division of engineering; entomology, in arts and sciences and in agriculture; bacteriology in agriculture and in veterinary medicine, or in arts and sciences and in agriculture, and so on. This may be desirable and sometimes contribute to coordination of work, and emphasis on those phases of the subject matter which would seem to fit the student body and local needs to the best advantage. The same principle holds true of the policy of assignment of work as between the departments of basic sciences and the departments of application like those in agriculture. There is no uniformity in the various institutions in this respect. Sixteen report that as much of the work as possible is assigned to the departments of basic sciences, 13 that as much as possible is assigned to the departments of application, and 14 that the practice is varied and is determined by many factors.

Junior divisions.—In addition to the organization of the colleges into divisions and departments as described by preceding pages, in recent years there has been much discussion of the desirability of the so-called junior divisions in colleges and universities, that is, a horizontal division of the institution into junior and senior colleges.

It is thought that by such divisions a curriculum can be organized for freshmen and sophomores that will be better adapted to their needs and that more attention can be given to good teaching and supervision of instruction than in the traditional 4-year curricula. It is argued also that students who are unable for one reason or another to spend four years in college find here a convenient stopping place. Further, the development of separate public junior colleges in many States from which students come to the land-grant colleges indicates that ultimately some adjustment of the 4-year college will be necessary.

While the agricultural divisions of the land-grant colleges are interested in this movement only a few thus far report the organization of junior divisions, namely: Iowa State College, Oregon Agricultural College, Clemson Agricultural College, the University of Tennessee, and the Agricultural College of Utah. Iowa State College, Oregon Agricultural College, and the Agricultural College of Utah report that the junior division is operated as a division of the institutional organization, while in South Carolina and Tennessee it is operated in connection with the agricultural organization.

The present high specialization throughout the four years of the agricultural curricula makes difficult the organization of a junior division with a more or less uniform curriculum. Students now enroll for work in landscape architecture or in dairy manufactures, for instance, and it is said that they would not be content to take the same subjects during the first two years as students in general agriculture or in horticulture. In the same way there is force to the argument that students in plant pathology would not wish to take identical work with those who plan to enter the field of agricultural business or agricultural engineering. It is frequently advantageous to give the junior division student some choice of work dealing with the specialty in which he is to do his major work. His interest is thus maintained. Institutions that have insisted that the work in basic sciences should come during the first two years and the applied subjects later, usually have found it necessary to modify their position and to permit students to have considerable leeway in the selection of subjects in the various applied fields. On the other hand, successful specialization should be based upon fundamental physical and social sciences and should be undertaken only after exploratory investigation of the general fields to which the specialization is related. Some of the real difficulties involved in the upper-lower division form of organization may be cared for by group electives and by free election under advisement. The plan does not necessarily in-

volve exclusion from fields of special interest to the student during his first years in college; it is designed to prevent high, early specialization at the expense of a sound basis for such specialization.

Agricultural faculty relationships to institutional faculties and to other major divisions of the institution.—All members of the resident agricultural staff are attached to departments. In addition they may hold membership in institutional faculties or faculties of other major divisions of the institution. In this respect there is little variation in practice in the land-grant colleges.

Those with the rank of full professor in the agricultural faculty generally are members of institutional faculties, although there are a few exceptions where a smaller number are on the institutional than on the agricultural faculty. However, the exceptions are too few to have any special significance. Associate professors and assistant professors are reported as members of the institutional faculty in almost every instance. Instructors are so reported in 17 instances only and assistants in 8.

The most common requirement for membership in the institutional faculty apparently is the attainment of the rank of assistant professor or above, although to a considerable extent instructors are granted this recognition.

Where a legislative body known as the senate exists, as in the universities of Arkansas, California, Kentucky, Minnesota, Nebraska, and Vermont, the North Dakota Agricultural College, and the State colleges of Pennsylvania and Washington, with few exceptions, all full professors are members.

In California 39 out of 42, and in Pennsylvania 16 out of 34, are reported as members of this body. In Kentucky, Nebraska, Washington, and Minnesota, associate professors also are members of the senate. California, Kentucky, Vermont, and Washington report the same number of assistant professors in the senate as in the agricultural faculty. In the other institutions apparently assistant professors are not senate members. Instructors are reported as members of the senate in California only, while assistants are not found in the senate in any institution.

Since the institutional faculty, or the senate, usually is the legislative body of the institution, it seems entirely logical that certain experience in college teaching as indicated by the attainment of the rank of assistant professor should be a prerequisite to membership in the institutional legislative body.

Granting membership in the faculties of more than one major division is a fairly common practice in a number of institutions.

Twenty-nine report 168 individual cases where professors of the agricultural faculty hold membership in other divisional faculties; 79 of these are members of the faculty of arts and sciences, 5 of home economics, 11 of commerce and business, 31 of education, 2 of veterinary science, and 40 of engineering. Twelve institutions report from 1 to 9 members of the agricultural staff as members of the staff in engineering, 9 institutions from 1 to 12 members of the agricultural faculty as members of the division of education, and 16 represented in arts and sciences. Eight institutions report a total of 43 associate professors

who are members of the agricultural faculty and some of the other divisional faculties; 13 institutions report a total of 46 assistant professors who are members of some divisional faculty in addition to the agricultural faculty. Seven institutions report a total of 18 instructors who are members of the faculty of more than one division, and of assistants only one institution with a membership of 2 in other divisions.

From the standpoint of subject matter or economy of time and funds, crossing of divisional lines at times may be desirable. For instance, a professor of farm crops who is not on the research staff and who has a light teaching load may serve also in the department of botany, and a professor in agricultural engineering may function for part time in the college or school of engineering. Where there is a separate school of education, agricultural education undoubtedly is best served in many instances by having regular members from the agricultural staff also on the staff of the school of education. While administrative problems are increased where divisional lines are crossed, this should not stand in the way if either the service to students is improved thereby or if economy is involved.

The dean of agriculture generally is a member of the institutional faculty, the senate, and the agricultural faculty, although omissions in reporting on this phase would indicate some exceptions. The director of resident instruction, where there is such an officer, also is reported generally a member of the institutional faculty, the senate, and the agricultural faculty, although here also there are some exceptions. The director of research is reported as a member of the agricultural faculty in 17 instances and the director of extension an equal number of times. This is a desirable practice since both officers in this way are better able to keep in touch with institutional programs and policies, and the faculties have the benefit of the advice of these men who are in intimate contacts with agricultural conditions not only within the State but regionally and nationally.

Faculty membership of extension staff and experiment station staff.—The practice of including State leaders and assistant State leaders, extension specialists and extension professors, associate and assistant professors and instructors in the agricultural faculties undoubtedly contributes to good understanding, unity of purpose and program of the staff both in undergraduate teaching and in extension, and helps to coordinate the work of the two groups and to maintain good fellowship and high morale in the entire staff. It is a practice to be commended.

Extension professors are reported as members of the agricultural faculty in 10 instances, including the universities of California, Illinois, Kentucky, Missouri, Ohio State, and Wyoming, Massachusetts Agricultural College, Pennsylvania State College, and Virginia Agricultural and Mechanical College. Extension associate professors are reported as members of the agricultural faculty in 7 institutions—the universities of California, Illinois, Minnesota, Missouri, and Wyoming, Pennsylvania State College, and Virginia Agricultural and Mechanical College. Extension assistant professors are reported as members in the same institutions as associate professors, and in addition in the University of Delaware, Massachusetts Agricultural College, and in Ohio State University. Extension instructors are reported as members of the agricul-

tural faculty in 4 institutions and extension assistants in 4, extension specialists in 9, extension State leaders in 11, and assistant State leaders in 8. Institutions including State leaders in the faculties are Connecticut Agricultural College, Georgia State College of Agriculture, University of Idaho, University of Maine, Massachusetts Agricultural College, University of Minnesota, University of Nebraska, North Carolina State College, South Dakota State College, West Virginia University, and the University of Wyoming. Those including extension specialists are: The University of California, Connecticut Agricultural College, Georgia State College of Agriculture, University of Idaho, University of Maine, North Carolina State College, South Dakota State College, West Virginia University, and the University of Wyoming.

The same holds true with reference to the inclusion of the experiment station staff in the agricultural faculties. In most institutions experiment station and college staffs are much the same in personnel since the agricultural faculties usually serve both the teaching work and the experiment station work. Even where this is not the case, agricultural faculty rank would seem desirable for all.

Curricula and instructional activities of less than four years.—Curricula and instructional activities of less than four years, ranging from the farmer's week of a few days devoted to inspirational and educational lectures, demonstration and entertainment features, to intensive short courses of from 1 to 12 weeks in length and curricula of 1 or 2 years, are reported from 42 of the 46 institutions replying to the questionnaire.

In 34 of these, farmers' weeks are held; in 31, intensive short courses of 2 weeks or less; in 13, 8-week courses; in 9, 12-week courses; in 10, 1-year courses; and in 18, 2-year courses.

The organization for the administration of this work is similar to that for the 4-year curricula, except that a separate director for these courses, responsible to the dean, is in charge in a few institutions. The department concerned is directly in charge of a considerable number of the 2-week courses and the director of extension is responsible for the farmer's week in approximately one-half of the institutions. Table 1 shows the details of organization of this work.

TABLE 1.—*Administration of curricula and instructional activities of less than four years*

Length of curriculum	Number of institutions reporting short courses	Administered by—							
		Dean or director of resident instruction	Separate director responsible to dean	Department concerned	Dean or director of resident instruction and department concerned	Separate director and department concerned	Director of extension	Director of extension and department concerned	Dean and director of extension
1	2	3	4	5	6	7	8	9	10
2 years	18	13	4		1				
1 year	10	7	2	1					
12 weeks	9	3	2			2	2		
8 weeks	13	8	2	1	1			1	
2 weeks or less	31	6	4	12	5		2	1	1
Farmers' week	34	9	2				16	2	5

Chapter III.—Lands Owned and Controlled by the Land-Grant Colleges

Land is essential to the agricultural work of a land-grant college for a number of important reasons. Plantings of orchards and small fruits, truck crops, field and forage crops are needed for student observation and occasional practice and for demonstration purposes. Land is needed also for the study of the history of soils and soil types. Pasture, forage, and other feeds for the stock usually can be produced more cheaply on college-owned land than when purchased, and far more conveniently.

High-class herds of representative breeds of dairy and beef cattle, horses, hogs, sheep, and flocks of poultry are very necessary in connection with undergraduate agricultural instruction. They might be classified as laboratory equipment in animal husbandry, dairy, and poultry husbandry. Flocks and herds can be maintained with economy only if there is sufficient land for pasture and for the production of the roughages needed. Land for production of grain for feed, while very desirable, usually is less necessary since such feed often can be purchased from the surplus of adjacent farms or even shipped in for little more than it would cost to produce it on college-owned farms.

The other very important need for land controlled by the institution is for experimental and research use in connection with the experiment station system and for service work in the production and distribution of pure seed. Quite commonly this land also contributes to the instructional work by serving as a source of forage and feed for livestock, and for illustration and demonstration for college classes. Land of representative type institutionally owned or controlled and adequate for resident instruction and for experimental and research purposes is essential in every State.[3]

Twenty-eight institutions report that some rented land is used and 15 institutions that there are additional lands owned by private interests but worked by the institution. Sixteen institutions report that the land used is in excess of the amount actually needed for teaching and research and that it is handled for the income obtained.

[3] See Part III, Business management and finance.

Development of instructional equipment beyond the needs of teaching and research and its use for income purposes may be necessary in individual cases. However, where this is the practice it may be at considerable expense to the institution in time devoted to management by department heads or others. Often what seems like a profit may resolve itself into a loss when all costs are considered. There is also the possibility of difficulties with commercial firms where the business of the college plant is developed beyond the needs specified. Five institutions indicate that such difficulties have been encountered. Further commercialization of educational facilities may very easily distort educational objectives. Only where it seems necessary to develop a unit of land, plant, herd, or flock to a certain size in order to make for economy and efficiency in management and in volume of business handled should the college plant be enlarged beyond the needs of instruction, research, and service.

On the other hand, where an institution develops its plants and farms only in accordance with the needs of instruction, research, and service, it must have the right to dispose of the products from its farms and plant to the best advantage commercially. Any other practice would be wasteful, and in the long run would not be tolerated by the taxpaying public. The commercial firms which may feel that the institution is in unfair competition with them, usually upon investigation will find that they have small reason for complaint.

The management of the land adjacent to the institution is in control of a central unit directly responsible to the administration of the agricultural division in 29 of the 43 institutions reporting on this point, while in 14 this is not the case.

In Florida the departments of agronomy, animal husbandry, and horticulture are responsible for the management of the farms. The same departments, plus forestry, are responsible in Georgia. In Montana the professor of animal husbandry is in charge. In Wisconsin the departments of agronomy and animal husbandry are responsible. In Virginia the department of agronomy is responsible to the dean for the management and the same is true in Washington. Other institutions where the land is not handled as a unit do not indicate which departments are responsible for the management.

In every instance but one, Tennessee, it is reported that land is assigned more or less permanently to departments for their special use. Administratively, it is easier to handle land belonging to an institution when it is assigned to the departments that have need for the land. That the department itself is responsible for the use of land assigned to it may be an incentive to good planning for the acreage allowed, particularly when the income from such land may be used directly for the maintenance of the department's work. However, there is on the other hand danger that the department will overemphasize the "income" aspects of such management, to the neglect of instructional and research uses.

The fact that in the majority of institutions the land is handled by one unit rather than by a number of departments undoubtedly is due to the greater economy with which land when limited in amount can be handled in this way. There is less duplication of equipment and less lost motion of man and horse labor and machine power where the land contiguous to an institution is handled as a unit rather than by departments. Both types of management are feasible. Where institutions are large with large numbers of stock and with sufficient land, the advantage of dividing the land into animal husbandry, dairy, and agronomy farms, for instance, may outweigh the disadvantages of duplication in equipment. In the smaller institutions and where the land is limited the unit system would seem to be most desirable.

Chapter IV.—The Staff in Undergraduate Instruction in Agriculture

Training and experience.—The personnel of an institution is its most important asset. Training, experience, age, ability, and interest in the agricultural teaching profession are determining factors in the qualifications of the teaching staff. The first three factors are measurable and are shown in Table 2 for a large group of the teaching staff from the institutions which gave comprehensive reports on this matter. While the tabulation speaks for itself there are some outstanding points that may be emphasized. First, of 491 professors, 176 associate professors, 351 assistant professors, and 251 instructors, 72, 70, 54, and 56 per cent, respectively, were farm reared, while 23, 24, 21, and 22 per cent, respectively, were not so reared, but have had farm experience. In other words, 98, 94, 75, and 78 per cent, respectively, or 84 per cent of the total of those who are teaching undergraduate agriculture have had farm experience.

Farm experience apparently has played a large part in directing the agricultural teacher into the profession he has selected. It is to be expected then that his interpretation of agricultural facts and problems are those of a man from within and not of one who lacks intimate touch with and understanding of the field in which he serves.

TABLE 2.—*Training and early experience of the teaching staff in undergraduate agriculture in land-grant institutions, 1927-28* [1]

Staff	Number of institutions reporting	Total number of staff	Farm reared	Not farm reared, but with farm experience	Number now operating farms	Attendance at college of agriculture [2]			Attendance at other types [2]	Number with doctors' degrees from present institution	Number with masters' degrees from present institution	Number with first degrees from present institution	Number who have served as county agents or as extension specialists
						Entire course with graduation	Part of course with graduation	Part of course without graduation	Entire course with graduation				
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Professors	36	491	354	113	93	329	35	20	167	47	84	99	86
Per cent			72	23	19	60	6	4	30	9	17	20	18
Associate professors	29	176	123	43	14	128	13	6	36	12	47	39	28
Per cent			70	24	8	70	7	3	20	7	27	22	16
Assistant professors	34	351	190	72	22	230	11	4	70	31	79	76	46
Per cent			54	21	6	66	3	1	20	8	23	22	13
Instructors	32	251	141	54	12	187	9	5	46	18	76	107	19
Per cent			56	22	5	75	4	2	19	7	30	43	8

[1] Data of table derived from institutional reports.

[2] The number of staff members whose attendance at a college of agriculture was reported does not correspond exactly with the number reported under degrees obtained in the returned questionnaires. The percentages in these columns, therefore, have been calculated on the basis of the total number whose undergraduate college attendance has been reported rather than on total numbers given in the second column.

The small number who operate farms, 19, 8, 6, and 5 per cent of the professors, associate professors, assistant professors, and instructors, respectively, may be accounted for by the fact that even though many faculty members might be interested in operating farms there are certain obstacles in the way of such practice. To manage a farm properly takes more time than the teacher can find, or indeed than he should use for private business. When the management as well as labor and other expenses on a farm are paid for, there is little or no surplus left for the absentee owner. Further, good farms cost money, more than the average faculty members can find and use for the purchase of land.

While the same academic degrees do not indicate an equal degree of attainment, and degrees must never be confused with ability, practical experience, or personal qualifications, nevertheless, degrees are a measure of certain educational requirements and of professional ambition. Other qualifications being equal, the man who has the degrees has an advantage in progress in the ranks, in the esteem of his fellows, and in the influence that he wields.

Of 1,849 members of agricultural staffs who made individual reports,[4] 29 (1.5 per cent) reported no degree; 795 (43 per cent) had none higher than the bachelor's; 728 (39 per cent) held the master's as their highest degree; while there were in this group 221 (12 per cent) with doctors' degrees. Seventy-five failed to give the information requested and it is probable that the number of those who held no degree or the bachelor's as the highest would have been increased somewhat if the information were available for this group. Nine of the 1,849 reported honorary masters and 21 honorary doctors' degrees.

These figures concerning degrees are confirmed in general by data showing for the same staff members the number of years training received after high-school graduation. Six hundred and nine had 4 years or less; 700 had 5 or 6 years; 471 had 7 or more; 69 did not furnish the information requested.

It is apparent that a relatively large proportion of the staff of the agricultural divisions have no degrees higher than those for which they are preparing undergraduate students. On the other hand this proportion is probably smaller than it was 10 years ago and the number of doctors' degrees is relatively large. The present emphasis upon advanced training for the staff in undergraduate agriculture is clearly resulting in decided improvement. This emphasis should be continued. There is still need to reduce the proportion of staff members with bachelor's degrees only.

Sixty per cent, 70 per cent, 66 per cent, and 75 per cent, respectively, of the professors, associate professors, assistant professors,

[4] Approximately 80 per cent of the total number of staff members teaching undergraduate courses in agriculture.

and instructors acquired their undergraduate training in colleges of agriculture. (Table 2.) In addition, 10 per cent of the professors, 1 per cent of the associate professors, 4 and 6 per cent of the assistant professors and instructors, respectively, secured a part of their undergraduate training in agricultural colleges. These facts are significant from two standpoints: First, the point of view and the interest in agriculture fostered in these institutions apparently are desirable assets for those who wish to teach agricultural subjects; and second, the agricultural institutions up to this time have furnished an important part of the training to the larger proportion of those who are engaged in agricultural teaching. They should be expected to do even more in the future than they have done in the past.

The question as to the number on a staff who have received their training in the institution they serve is an interesting and an important one. The facts as shown by Table 2 indicate that department heads often select and recommend for positions as instructors men from their own institutions of whose ability they are certain, through personal knowledge and experience, rather than others who must be accepted on credentials from elsewhere. Since funds usually are limited and the home product often can be secured at less cost than if selection is made from another institution, the home-trained person is appointed. Institutions, however, need to be on guard against excessive inbreeding.

The last column of Table 2 shows that of 1,269 members of the staffs slightly more than 14 per cent had served as county agents or extension specialists. Data were furnished by 1,849 individual members of the agricultural staffs concerning other types of experience. Of these 460 (25 per cent) had experience as high-school teachers, and of this number, 356 had experience as high-school teachers of agriculture. Of the total number reporting, 154 had experience as school principals or superintendents.

It is interesting to discover from the same data that 640, or almost 35 per cent, of the total number of staff members reporting had taken courses in professional education subjects. Of this number, 301 had taken less than 11 semester hours; 203 from 12 to 23; and 136 had credit for 24 semester hours or more in education. This is by no means an unfavorable display of emphasis upon preparation for teaching as compared with similar data for other groups engaged in university and college teaching.[5] While method can easily be overemphasized in the busy training period when subject matter must receive attention by those who want to become well informed in agricultural fields, nevertheless the agricultural teacher of the future

[5] See Parts VII, "Staff"; X, "Engineering"; XI, "Home economics"; and Vol. II, Part III, "Teaching training" for comparisons, and also North Central Association Quarterly, IV: 213–225, September, 1930.

more and more will need to familiarize himself thoroughly with teaching methods and practices and with the historic background and philosophy of educational progress.

The survey inquiry affords some slight indications concerning two additional measures of the interests and contacts of staff that are of importance in estimating the character of the agricultural staff, the number that have written for publication and membership in professional or other scholarly organization. Of the 1,849 staff members submitting a record, 274 had published research investigations during the past five years but publications of no other type; 361 had publications of popular character only; and 492 had published both scientific and popular material. Eleven hundred and sixty-three belong to from 1 to 5 organizations that are not primarily social in character, while 221 belong to 6 or more. Only 231 stated that in 1927–28 they had attended no professional meeting, but the fact that 741 failed to record attendance may indicate that this number should be considerably larger. However, 876, or more than 47 per cent, attended at least one meeting of a professional or scientific organization, and in many cases several were attended.

It is apparent that the publications and the organization memberships and attendance of the agricultural staff indicate active and alert interest and participation in scholarly matters.

Appointments and Promotion of Staff

An institution will be as great as the personnel of its staff and its students make it, and no greater. It will contribute to the education of students who come to it and to the progress of learning and be helpful and influential in direct proportion as the staff is able, devoted to its work, and provided with a satisfactory institutional environment. Selecting the staff and retaining those who are superior are tasks worthy of the most devoted effort. No responsibilities of administrative officers are larger or more far-reaching than those involved in the appointment and promotion of staff members.

This responsibility usually is subject to careful administrative procedure. While institutions differ somewhat in methods used, the essentials of procedure are similar in all, and methods of appointment to the agricultural staff differ little from those to other divisions of the land-grant institutions.

With one exception only in all institutions that reported on methods or procedure in the selection and promotion of staff members, the president takes the first steps and exercises the major responsibility in the selection of the dean of agriculture. In one institution when the president has selected a suitable candidate or candidates, he refers the matter to the agricultural faculty for consideration and advice, and then to the board of trustees. In another institution the college faculty may suggest a candidate or name directly

to the board of trustees which then takes action. In two other institutions apparently, the board of trustees takes action on their own initiative in the appointment of the dean.

In the appointment of directors of teaching, research, and extension, the centering of the major responsibility varies with the type of organization. Where the dean is responsible for the work in all three lines, he finds suitable candidates for these positions and recommends to the president. Major responsibility of this character on the basis of reports received in this study is exercised by the dean in 18 institutions. In 22 institutions, mostly the separate land-grant colleges, the president is reported as taking the initiative and exercising the major responsibility in the selection of these officers.

The dean of agriculture recommends appointment of department heads in 38 institutions out of 45 reporting on this practice. The president apparently takes the initiative in seven instances (usually in smaller institutions). Where the dean recommends he does so directly to the president, except in one case where his recommendation first is considered by an institutional committee and in another case where his recommendation goes direct to the board of trustees.

In the appointment of professors and assistant professors the department head takes the initiative in 26 institutions reporting, the dean in 13, and the director of resident instruction in 2. The department heads' or directors' recommendations normally go to the dean and his in turn to the president. The appointment and promotion of instructors and assistants usually takes the same route as in the case of professors and assistant professors.

It is clear that the appointing power and the power of promotion should lie in large part where the major responsibility for the work is lodged. Since the dean is held responsible for the functioning of department heads his should be the responsibility of finding and recommending department heads for appointment or promotion. Since the department heads are held responsible for the work of the members of their departments they should function primarily in finding and recommending to the dean and he in turn to the president suitable candidates for faculties, and promotions of members of the department. The governing board and the president in the final analysis carry the responsibility for the functioning of the institution as a whole. They, therefore, must have final authority in all appointments and promotions. Any tendency for governing boards to appoint or promote except through the president, or for the presidents, deans, or directors to appoint or promote without consultation with or recommendation from those immediately responsible for specific units of work weakens the administrative structure, and is likely to cause friction and misunderstanding.

Professional requirements for appointment to the agricultural staff.—In connection with staff selection it is interesting to note the professional requirements of the different institutions for appoint-

ments to the agricultural staff. While sufficient specific detailed reports on this point were not received from the land-grant institutions to justify a tabulation, it is clear from the data available that requirements to-day for appointment to the agricultural staff are comparatively high and considerably higher than a decade ago. California, Louisiana, Maine, South Carolina, and West Virginia, as examples, definitely specify that the doctor's degree is required for an appointment to a professorship. Others specify at least a master's degree, while a few indicate that those with only a bachelor's degree may be appointed professors. The requirements for associate professor are similar, the doctor's or master's degrees being required by 60 per cent of the institutions reporting. For appointment as assistant professor, the master's or doctor's degree is required in a considerable number of institutions, although in many selection and promotion to this rank can be made of persons with only a bachelor's degree. A standard requirement for instructors is the bachelor's degree, although several institutions will appoint no one as instructor who has not had advanced work as indicated by the master's degree.

Coupled with advanced work as indicated by the doctor's and master's degrees, experience and personal characteristics are taken into consideration when appointments are made, especially to the more advanced positions. There is no uniformity of requirements in this respect and there can be none. For the higher positions of the better-supported institutions, successful experience in teaching or research in the specialty is a universal requirement for appointment. In the lower ranks this is not regarded as equally necessary, since there are others on the staff to guide such appointees and they are thus able to acquire experience on the job. No young man to-day, however, who contemplates taking up the teaching of agriculture in a land-grant college or university, and who is ambitious to succeed, can expect to get very far in the profession unless he takes advanced work leading to the master's and doctor's degrees and acquires suitable experience while so doing.

The progress of the agricultural staff.—The progress of the agricultural teacher through the ranks from the time he begins college teaching and the age of the teachers in the various ranks are shown in Table 3. Records of professors were obtained from 40 institutions, associate professors from 30, assistant professors from 35, associates from 1, and instructors from 14. It is evident that the large majority of professors in undergraduate agricultural teaching are in the productive period from 30 to 60. Only 11 out of 583 are less than 30 years of age, and only 41 are more than 60. The ages would indicate that it is a mature, seasoned, and vigorous group of

men. The majority, 380 out of 485 for whom records are available, began college teaching before 30 years of age.

Teaching agriculture in colleges and universities is a profession not easily adopted in advanced years after other professions have been tried. It is a calling requiring certain aptitudes and outlook, and specific training and experience. This has a tendency to limit the group to those who definitely choose this as their work because of the interest they have in it and the qualifications they possess. The large majority of the 420 professors for whom records on the period of instructorship were obtained began college teaching and became instructors at the age of 20 to 30, assistant professors at 25 to 35, associate professors at 25 to 40, and professors at 25 to 45, the large majority being 35 to 50 years of age, with a median of 42. The median years' service spent in each rank is 2 as instructor, 3 as assistant professor, 2 as associate professor, and 9 as professor. For example, the typical professor who started college teaching as an instructor at 26 became an assistant professor at 28, an associate professor at 31, and a professor at 33.

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TABLE 3.—*Age in 1928 of various ranks and age when the different ranks were attained*

Staff	Number institutions represented	Number of cases	Present age range										Median age professor	Number of cases	Began collegiate teaching						Number of cases	Became instructor					
			21–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–70			20 and under	21–24	25–29	30–34	35–39	40 and over	Median age commenced teaching		20 and under	21–24	25–29	30–34	35 and over	Median years service of instructor
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Professor:																												
In present institution	40	583	1	10	43	108	164	102	70	44	24	17	42	485	7	164	209	59	30	16	25⅔	420	2	67	61	26	8	2
In another institution																							4	97	122	24	9	
Associate professor:																												
In present institution	30	183		7	38	66	53	8	7	1	3		40	162	12	57	51	31	6	5	26	123		20	29	12	5	2
In another institution																								22	25	7	3	
Assistant professor:																												
In present institution	35	309	6	38	106	90	41	13	10	2	2	1	34⅙	250	3	71	113	42	15	6	26¾	249	2	37	80	33	7	3
In another institution																							2	30	48	7	3	
Associate:																												
In present institution	1	15		1	5	7	1	1					34½	15		4	4	6	1		28	12			6	4	2	2
Instructor:																												
In present institution	14	109	14	45	28	8	11	2		1			27½	81	1	28	33	13	3	3	26⅓	112	1	31	50	13	9	
In another institution																								4	3		1	
Total		1,199	21	101	220	279	270	126	87	48	29	18																

Staff	Number of cases	Became associate						Became assistant professor							Became associate professor								Became professor								
		21–24	25–29	30–34	35–39	40 and over	Median years service of associate	Number of cases	21–24	25–29	30–34	35–39	40 and over	Median years service assistant professor	Number of cases	20 and under	21–24	25–29	30–34	35–39	40–44	45 and over	Median years service associate professor	Number of cases	21–24	25–29	30–34	35–39	40–44	45–49	50 and over	Median years service of professor
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
Professor:																															
In present institution	38	3	8	6	2		2	353	16	115	72	21	10	3	223		3	45	65	32	13	6	2	568	5	68	168	126	78	19	11	9
In another institution		3	10	5	1				17	63	33	4	2				3	28	26	2					7	37	29	14	5	1		
Associate professor:																															
In present institution	13		4	6			1	134	10	39	44	15	8	3	189	1	2	40	63	45	18	9	4								
In another institution			3						8	7	3					1	3	3	4												
Assistant professor:																															
In present institution	14		6	6			2	339	22	110	112	54	17	3																	
In another institution					1	1			1	12	9	2																			
Associate:																															
In present institution	15		4	6	4	1	3																								
Instructor:																															
In present institution																															
In another institution																															
Total																															

The tabulation of the median service of associate professors who have become professors indicates that progress from one rank to the next higher is somewhat slower than was formerly the case. The median has been lengthened from two years for those who are now professors to a median service of four years for those who are serving as associate professors. It appears also that the rank of assistant professor is obtained somewhat later in life to-day than was the case of those who are now professors, associate or assistant professors. This is in part due to the fact that institutions are now demanding more advanced work before regular appointment is given on college staffs. Moreover, the upper ranks are filled in the majority of cases by men who, as shown above, are still comparatively young and vigorous. Promotion in rank, therefore, necessarily is slower than during the period when the agricultural divisions were expanding rapidly.

Promotions.—The appraisal of the staff members for promotion in rank and salary is a knotty problem everywhere. There is no standard measure or method of procedure. Nevertheless, in 37 of 42 institutions reporting on this point it is indicated that careful appraisal is made for the purpose of promotion. The other five report that appraisal is not carefully done.

Some of the methods of procedure in arriving at judgment are: (1) Appraisal by the department head or other supervising officer on the basis of knowledge of the work done by the staff member, 18 cases; (2) student opinion as determined by means of questionnaires, 5 cases; and alumni opinion, 2 cases; (3) conferences of administrative officers, 3 cases. (While this is reported in three instances only, undoubtedly it is practiced more widely.)

That there is room for developing some more effective methods of appraisal in the several institutions is quite clear from the lack of uniformity in methods now followed. If one method may be said to be used more than others, it is a general appraisal on the part of administrative officers on the basis of personal contact and observation.

The factors most frequently operating to bring about promotions are better defined than the methods of arriving at these factors. They are numerous and varied. The following is a statement of the factors named by the various institutions and the number of times each is mentioned: (1) Teaching ability and efficiency, 32; (2) research ability, 13; (3) length of service, 11; (4) scholarly attitude and keeping up in subject matter, 10; (5) opportunities to go elsewhere, 7; (6) advanced study for degrees, 5; (7) ability to cooperate, 5; (8) personality, 5; (9) openings in institution giving opportunity for promotion, 5; (10) ability to make contacts, 4; (11) production

of creative material, 3; (12) service and usefulness to institution, general influence, loyalty, willingness to assume responsibility, 2 each; (13) initiative and industry, previous salary increases, production, interest, general reputation as a teacher and administrative ability, 1 each.

The factors mentioned at the head of the list, namely, teaching ability and efficiency, research ability, length of service, and scholarship, are undoubtedly taken into consideration almost universally when promotion is considered. Initiative and industry, and ability to cooperate within and without the institution and to make contacts are highly prized almost everywhere and doubtless receive more consideration than the reports would indicate.

Salaries of the agricultural staff.—While the salary range of the agricultural staff, especially in the better supported and larger institutions, is more nearly adequate to-day than at any other time, only 18 professors out of 562 receive a salary of $6,000 per year or more and only 68 from $5,000 to $6,000 per year. In other words, only 15 per cent of the total number of professors receive as much as $5,000 per year. Approximately 43 per cent receive between $4,000 and $5,000 and 41 per cent less than $4,000. See Table 4.

TABLE 4.—*Salary range for staff of undergraduate instruction, with number of institutions reporting for each rank and salary grade (full-time staff members only)*

Staff	$750–$999	$1,000–$1,499	$1,500–$1,999	$2,000–$2,499	$2,500–$2,999	$3,000–$3,499	$3,500–$3,999	$4,000–$4,499	$4,500–$4,999	$5,000–$5,499
1	2	3	4	5	6	7	8	9	10	11
Deans								3	4	6
Directors of resident instruction							4	3	3	3
Professors				3	5	44	181	152	91	50
Associate professors				4	52	107	61	24	1	
Assistant professors		1	6	50	130	102	26	2		
Instructors		5	60	84	19	7				
Assistants	12	10	20	5	2					
Total	12	16	86	146	208	260	272	184	99	59

Staff	$5,500–$5,999	$6,000–$6,499	$6,500–$6,999	$7,000–$7,499	$7,500–$7,999	$8,000–$8,499	$8,500–$8,999	$9,000–$9,499	$10,000 and more
1	12	13	14	15	16	17	18	19	20
Deans	6	3	1	2	1		1	1	3
Directors of resident instruction		1		1					
Professors	18	8	5	4					1
Associate professors									
Assistant professors									
Instructors									
Assistants									
Total	24	12	6	7	1	0	1	1	4

Of the total number of cases thus reported (1,398) by the institutions for all ranks, including high-salaried deans, 468, or 33 per cent, received less than $3,000, and only 115, or 8 per cent, more than $5,000.

Reports received directly from 1,849 staff members permit a somewhat more complete analysis. Of these, 1,550 were full-time employees, 21 employed from 75 per cent to 99 per cent of their time; 68 from 50 per cent to 74 per cent; and 33 less than half time; 176 did not state for what percentage of their time they were employed by the institution. Salaries were distributed among 1,849 as follows: 7 received from $100 to $400; 38, from $500 to $999; 39, from $1,000 to $1,499; 90, from $1,500 to $1,999; 245, from $2,000 to $2,499; 356, from $2,500 to $2,999; 436, from $3,000 to $3,499; 285, from $3,500 to $3,999; 153, from $4,000 to $4,499; 93, from $4,500 to $4,999; 48, from $5,000 to $5,499; 20, from $5,500 to $5,999; 5, from $6,000 to $6,499; 8, from $6,500 to $6,999; 4, from $7,000 to $7,999; 2, from $8,000 to $9,999; and 2 received $10,000 or more. Seventeen did not furnish data. Thus from these data it is evident that upon the basis of salaries alone 775, or 42 per cent, received less than $3,000 per year while only 89 or less than 5 per cent received $5,000 or more.

Nor were these salaries supplemented in any large number of cases by perquisites. Only 115 reported perquisites ranging in 23 cases from $100 to $200; in 52, from $300 to $500; in 19, from $600 to $800; in 21, from $900 to more than $1,200. A few (140) received in addition to their regular salaries compensation for evening classes, extension work, or summer school. These additional earnings amounted in 47 cases to from $100 to $200; in 65 cases to from $300 to $500; and in 28 cases to more than $500.

Considerably larger numbers supplemented their institutional earnings by outside work, but the total number does not constitute a large proportion of the 1,849 cases, nor, except in a few cases are outside earnings large. One hundred and eleven earned less than $200; 58, from $300 to $500; 22, from $600 to $800; 23, from $900 to $1,700; 4, from $1,800 to $2,300; 7, from $2,400 to $4,900; and 1 more than $5,000.

It is clear that the salaries of the agricultural staff are comparatively low when the long training necessary and the apprenticeship period are considered. The situation is presented only in part by the data given; it is further complicated by the fact that the period served each year varies from 9 to 12 months. The salaries paid to the agricultural staff should be compared with those received by members of the staff of land-grant institutions as a whole.[6]

Because the agricultural staff is not unusually upon a pay period and service basis different from that of other divisions it is necessary to consider this matter in some detail. In the majority of the institutions (33 out of 44 reporting) the larger proportion of the agricultural staff is employed on the 11 months' basis with one month's annual vacation. In the others provisions for vacation periods differ. For instance, in California, Colorado, Connecticut,

[6] See Part VII, "Staff," p. 569.

Iowa, Massachusetts Agricultural College, Montana, Nebraska, Vermont, Virginia, and West Virginia, both the 9 and 11 months' bases are used. Usually where the 11 months' basis is used the staff members also are on the experiment-station staff and devote part time to experiment sation work during two months when the college is not in session. In Oregon and Washington, respectively, one member of the staff only is on the nine months' basis.

At Cornell University the members of the staff are given three months' vacation with the understanding that it is to be used in large part for professional improvement. One month only is given administrative officers. In Mississippi the vacation period varies from two weeks to three months in accordance as the staff member may be needed or not needed at the college. In Louisiana the appointment is on the 9 months' basis with extra pay for teaching in summer school. In Wisconsin the salary is on the 10 months' basis. If the staff is on pay beyond 10 months, 15 per cent of the previous year's salary is allowed for 6 weeks' teaching, and 12½ per cent for administrative or extension work.

Vacation periods are movable in 28 out of 43 institutions. The summer session is regarded as separate by 24 out of 41 institutions and additional salary is paid for teaching during that period in the majority of instances. Generally, however, very little undergraduate agriculture is taught during the summer session. The additional salary paid to the regular agricultural staff for summer-school teaching is very small.[7]

Determination of salaries.—The determination of salaries of the agricultural staff members normally follows much the same procedure as recommendations for appointment and promotion and is controlled in the agricultural division as in others by institutional procedure. Those who exercise authority or influence on salary determination and control need all the guidance available from authoritative sources. Certainly the dean will wish to confer with the department head and have his best judgment and recommendation with reference to all members of the department. On the basis of such conferences and recommendations and in the light of service performed by those recommended, as well as in the light of salaries for similar ranks in the various departments, the dean will make his recommendation to the president. The president in turn makes his decision in the light of these recommendations and of his knowledge and judgment of funds available and salaries in the institution as a whole. Nothing so quickly injures the morale of a group or adds to the difficulties of administration as departure from the

[7] See Part VII, "Staff," for comparison of salaries of staff members on 9 and 12 months' basis.

policy of acting only on recommendations that have come through such regular channels.

Outside activities of staff members.—Outside activities of the agricultural staff members are numerous and in some institutions very extensive. Usually they are in the nature of extension work or service to the public, to organizations, and to individuals, performed without extra pay as a part of the regular activities of the institution. There are other activities of a less public character, some of which are in the nature of private undertakings engaged in by staff members here and there. Included among these are the preparation of texts for colleges and high schools, editing departments in agricultural journals, giving professional advice to individuals and organizations, managing farms, and engaging in business enterprises of various kinds. While some institutions have had very little experience in such activities, the majority at one time or another have found it necessary to adopt policies or take action with reference to most of them.

The preparation of a text or texts may, if well done, add to the prestige of the staff member and to that of the institution which he represents. That text book writing should be generally approved and encouraged, therefore, is to be expected. It is definitely encouraged in 31 out of 44 institutions reporting and is discouraged in none, while a neutral attitude is maintained in 13.

Editing departments in agricultural journals also may be regarded in part as public service. However, it may consume so much time that teaching, research, and other institutional duties are neglected. Further, it is difficult to disassociate editorial policies from those of the institution in the minds of the public, hence difficulties sometimes arise from such work by staff members. This practice is encouraged in 13 institutions, discouraged in 3, and not permitted in 2, while 26 hold a neutral attitude.

Giving professional advice for pay can only with difficulty be dissociated from advice given by the institution free of charge in its extension activities, in service work, and in published material. Sometimes it leads to entanglements in law cases and in settling controversies where enmities are incurred. Usually this practice is not regarded with favor by agricultural institutions. It is not allowed in 8, is discouraged in 18, and a neutral attitude is maintained in 18.

Engaging in business enterprises is discouraged in 31, not allowed in 2, and a neutral attitude is maintained in 11.

The management of farms while on the teaching staff has been a debatable practice for many years. While on its face it would seem that such practice might be of professional value to staff members in the various agricultural specialties, the time so used is likely

to encroach upon institutional duties and general activities that otherwise are better cared for. This is indicated in the lack of uniformity in policy with regard to this practice. Three institutions do not permit it, 12 discourage it, 22 are neutral, and only 4 give definite encouragement.[8]

Professional improvement.—Keeping abreast of the times is not an easy matter for a faculty member. First, he is supposed to be well trained in his special field of work; second, he is expected to read all new published material in his own field in the English language and in such foreign languages as he may command; third, he will wish to keep informed about the fields closely related to his own; and fourth, he will need to keep in close touch with the agriculture of his State and section, particularly as it relates to his own specialty. This requires reading and study of texts, bulletins, and articles in the scientific and the agricultural press. Moreover, of necessity it involves considerable travel in the State and immediate section if not nationally as well.

But this is not enough, for one who is to be a real teacher must be broader than his specialty. He should be well informed in other fields than his own. He should be acquainted with the progress being made in the educational field. He should know how things are done in other departments and divisions of his own institution and in other institutions.

This requires constant individual and group effort. Therefore, the teaching and administrative staffs of many institutions have organized and developed specific plans and methods for assistance in this direction. Details of these procedures are presented by the part of this report dealing with the staff of the land-grant institutions,[9] since groups for the discussion of teaching problems, special courses for college teachers, opportunities to enroll for advanced degrees in their own institutions, and leaves for study usually apply to the agricultural staff in no peculiar sense, but are matters of general institutional control or arrangement.

Staff growth.—With increased output of dependable agricultural information resulting from the activities of the experiment stations, with some increase in student enrollment, and with growing demands for extension work and for such special service as agricultural institutions give, the number of agricultural staff members has increased rapidly. The growth of the staff in 43 institutions is shown in Table 5. Between 1902–3 and 1907–8 there was an addition

[8] In California for those on a 9-month basis the attitude is neutral in respect to all of these activities; for those on the 11-month basis the attitude is neutral with reference to the preparation of texts, but managing farms and giving professional advice for pay are not permitted.

[9] See Part VII, "Staff."

of 280 members. This was a period of increased enrollment in agriculture and of development of specialization that resulted in the organization of new agricultural departments. The agricultural student body increased from 2,405 in 1903 to 4,247 in 1908, or more than 75 per cent; the staff increased in size during the same period by more than 100 per cent.

TABLE 5.—*Number of members of teaching staffs in undergraduate agriculture in 43 institutions by 5-year periods from 1902–3 to 1927–28* [1]

Staff	Year					
	1902–3	1907–8	1912–13	1917–18	1922–23	1927–28
1	2	3	4	5	6	7
Dean	12	19	22	30	32	33
Vice dean or director of resident instruction	4	5	6	8	9	12
Other administrative officers	3	6	13	17	19	19
Professors	121	204	291	449	621	717
Associate professors	14	32	63	153	233	288
Assistant professors	32	69	150	319	375	425
Associates			5	6	35	26
Instructors	38	128	240	339	383	358
Assistants	27	68	225	156	149	207
Total	251	531	1,015	1,851	1,856	2,085

[1] From data furnished by institutional administrations.

The part-time experiment station and teaching staff grew with increased specialization. The student body continued to increase and by 1916 it was more than three times as large as in 1908. During this period also the colleges began to give more attention to extension work. The teaching and experiment station staffs were called upon to give much time to the preparation of material for extension use and to give help in extension meetings and in organization work. The result was an increase of 250 per cent in the number of persons on the agricultural staff from 1907–1917. Then came the war period and with the decrease in enrollments the number on the teaching staff declined somewhat, but by 1922–23 again had increased. Because of the large enrollment of agricultural students in 1920–21, the great demand for research and service work of all kinds and the beginning of training for Smith-Hughes teaching, the staff was the largest up to that time. From 1923–1927 there was a small increase due in part to additional appropriations for experiment station work.

Just how the agricultural staff spends its time is indicated in Table 6. The table is derived from data furnished by 1,849 individual members of agricultural staffs.

It is apparent at once that in addition to undergraduate teaching, the agricultural staff has many duties and renders service in many lines. The teaching of graduate students, creative work and research

(primarily experiment station work), extension teaching, and public contacts are all of them services of great value to the students and to the public.

TABLE 6.—*Number of agricultural staff giving different percentages of time to various activities*

Activity	No part of time	Per cent of time										No answer
		1–9	10–19	20–29	30–39	40–49	50	60	70	80	90	
1	2	3	4	5	6	7	8	9	10	11	12	13
Undergraduate	634	39	109	132	125	92	117	82	57	45	87	329
Graduate	1,083	171	154	47	15	7	5	0	0	0	0	366
Research	843	83	100	84	59	55	78	50	28	27	97	344
Other creative work	1,079	64	64	54	39	33	32	19	15	15	70	364
Administrative	853	198	164	95	66	31	32	13	14	4	16	362
Extension	622	255	145	50	28	8	18	12	7	6	336	361
Public contacts	920	391	136	20	7	4	6	0	0	0	2	362

It is essential that administrative officers and the public thoroughly understand this situation when attempting to secure data about cost per student. Frequently factors that are not properly chargeable to undergraduate instructions are included in computations of how much it costs to educate a student. These distinctions must also be clearly understood when effort is made to determine the load carried by staff members and when budgets and fund allotments for various types of work are considered. Accurate records of time distribution among the several types of duty performed are difficult to obtain, but suitable record blanks may well be prepared on which every staff member will indicate to the best of his ability, at least once each semester or quarter, how his time is used. With such records on file in the administrative offices of an institution, including the offices of each dean and director for the staff under his charge, it is possible to evaluate the approximate time devoted to any one of several groups of activities by any staff member or by the staff as a whole.

Because much of the time of the agricultural staff has been required for activities other than those of teaching, all agricultural institutions have a much larger staff than would be required for undergraduate instruction only. This has made possible specialized work of a high character that would have been impossible if teaching had been the sole function of the staff. The continuous development of new facts in agricultural science which almost immediately find their way into the classroom, has raised the standard of the subject-matter material presented to the student body.

Experimental and research work, as well as extension work, also have profited greatly by this relationship since it has made possible the joint employment and use of a greater variety of better qualified

specialists than would have been possible if these units had been limited solely to the employment of full-time persons.

Staff losses.—Excessive losses from the staff make it difficult to maintain high standards and continuity of effort. In the 5-year period for which staff losses have been reported, July 1, 1923, to June 30, 1928, 2 deans, 13 professors, 3 associate professors, and 7 assistants were lost by death, 1 professor and 1 associate professor by illness, and 7 professors and 2 assistant professors by retirement on account of age. Eighteen institutions were affected in these changes. Losses for other reasons are indicated in Table 7.

The largest staff losses are due to transfer of members from one institution to another. These amounted to 196 individuals, or 44.14 per cent of all staff losses in agriculture during the 5-year period July 1, 1923, to June 30, 1928. When vacancies occur, if candidates suitable for promotion are not available, it is necessary to look to some other institution. Usually selections are made from institutions where the salary scales are lower or from candidates of suitable qualifications but of lower rank than that carried by the positions to be filled. Transfers of this kind are frequently of decided immediate disadvantage to the institution from which the staff member is taken. On the other hand, the advantages of promotion for the individual and of securing faculty members with college experience make the net result of such movement of the staff a healthful condition. It is by no means disadvantageous for a small institution, with a relatively low salary scale, to establish a reputation of furnishing staff members opportunities for advancement to other and bigger jobs. The opportunity for advancement to staff members in this manner acts as a stimulation to good work, and attracts good men who have little previous experience.

TABLE 7.—*Staff losses in the ranks of assistant professors and above for the period July 1, 1923, to June 30, 1928, in 43 institutions*

Rank	To other institutions	To farming	To agricultural organizations	To other professions	To Federal Government	To State government	To business	Total
1	2	3	4	5	6	7	8	9
Dean	3		1		3			7
Other administrative officers	6	2	2			4		14
Professor	42	8	12	5	6	16	22	111
Associate professor	40	6	6	5	8	5	17	87
Assistant professor	105	10	6	17	14	30	43	225
Total	196	26	27	27	31	55	82	444
Per cent of total	44.14	5.85	6.08	6.08	6.98	12.38	18.46	

That the "pull" of business is strong is evident from the fact that 82 staff members were lost to institutions because of business in the 5-year period considered. In addition, 27 left the institutions to affiliate with agricultural or-

ganizations and the same number to enter the professions. The National and State governments were able to attract 31 and 55, respectively, or a total of 86. The majority who make such transfers go into agricultural research, control, or administrative work. They are not lost to agricultural education or the agricultural industry since their work in the new positions usually makes for progress in these fields.

It is interesting to note that losses by transfer of staff members to farming are comparatively few, only 26 from all ranks taking this step in the 5-year period under consideration.

It would be very unfortunate for educational institutions if there were not opportunities for staff members to move from one institution to another or into other walks of life. That these opportunities are present makes possible deserved promotions and gives opportunity to staff members for growth and advancement. Under such conditions the best work is done.

Chapter V.—Courses and Curricula

The aims and purposes of undergraduate instruction in agriculture have been discussed in detail in a previous chapter. Attainment of these purposes is dependent in part upon the courses and curricula offered to students who enroll. This being true, the more careful the consideration given to the content of courses and to the organization of curricula the better will be the likelihood that objectives will be attained.

The courses are prepared by a number of different individuals of the instructional staff, but they are usually inspected by other officers or committees. The procedure varies somewhat in different institutions but usually is as follows: The individual teacher prepares an outline of the material to be presented in a course together with texts or references that will be used, and indicates the number of hours of class-room work required per week. This is reviewed by the department head and is submitted by him to the dean who may refer it to a committee of the agricultural staff or the staff as a whole for approval and to an institution faculty committee or institutional faculty for final approval. In some cases it is referred from the dean or from the agricultural committee or staff direct to the institutional faculty.

Four institutions report that courses to be offered must first have the approval of the individual staff member, after which they go to the department head for approval. The department head is reported as first approving courses in 16 institutions. When a course comes to him he considers it, and if he approves forwards it to the dean for approval in 11 institutions, to an agricultural faculty committee in 5, to the agricultural staff in 2, and to the director of resident teaching in 2. The director of resident teaching gives final approval in 1 institution but in the other he forwards the course to the dean.

The dean of agriculture is the first to receive courses and act on them in 4 institutions, second in 12, third in 1, and fourth in 2. He has final authority on courses in 3 institutions and refers them to others in the 16 instances in which he considers them.

An agricultural faculty committee is the first to receive and approve or disapprove proposed courses in 7 institutions, second in 3, and third in 6. The agricultural faculty as a whole is the first to receive and consider courses in 9 institutions, second in 7, third in 3, fourth in 5, and fifth in 1. It, therefore, acts on courses in 25 institutions but has final authority in only 8.

An institutional faculty committee is the first to receive and act on courses in 2 institutions, second in 2, third in 5, fourth in 2, fifth in 3, thus acting on courses in 14 instances. It has final authority in 5.

The president is the second to receive and act on courses in 1 institution, third in 2, fourth in 2, fifth in 4, and seventh in 1, thus acting on courses in 9 instances with final authority in 6. The board of trustees gives final approval to courses in 1 institution and the State board of regents in 4.

The setting up of curricula is a more complicated process than the preparation of individual courses. Usually no one of the staff is a specialist in this work, and there are no invariable rules to be followed by the individual, committee, or group that undertakes it. On the other hand, a number of guides are commonly used. These are listed as follows in the order of their reported use by the institutions.

Guide	Number of institutions
Study of the curricula of other colleges	38
Analysis of occupations of graduates and former students	37
Staff discussion of objectives of agricultural training	34
Study of elements of basic sciences essential to understanding of the technical courses	33
Analysis of the agricultural industries of the State	30
Study of range of opportunities in agricultural occupations and their frequency	26
Systematic inquiry of agricultural graduates and others as to the purposes college training should meet	20
Study of reasons for which students abandon the study of agriculture	12
Study of the nontechnical activities of those in agricultural vocations	9
Study of the causes of failure in agricultural vocations	6

Curricula with certain aims or objectives may be decided upon as desirable and courses outlined and arranged to give the desired material in the proper place, or the curricula are built out of the courses already offered by the various departments, those being used that seem to be closely related and to contribute the type of material that is desired in the curriculum. While the former plan would seem to be the most desirable from the standpoint of the results that are likely to be obtained, comparatively few institutions follow this practice. The majority construct the curricula largely from the courses already outlined and made available by the different departments. In the one instance the material for the course is planned and shaped to fit into a structure of a certain architectural design. In the other the materials available are examined and the best possible under the circumstances are selected; out of these a structure is built which may or may not follow a well-designed plan. In one case curricular objectives are decided upon and courses are prepared on the basis of desired content with a view to coordination with other similarly prepared courses in a finished curriculum. In the other case the curricula are prepared by arranging combinations of courses already available in the various subject-matter departments. Most institutions have found it impossible to outline courses which will meet fully the objectives in any single curriculum, since the courses usually must be given at one and the same time to many students enrolled in different curricula.

The building or setting up of curricula usually is a complicated process and involves several agencies in practically every institution. The first planning

is done by department heads in 11 institutions. In all cases the curricula are submitted for approval to the dean and agricultural or institutional committees or faculties or several combinations of these. The agricultural dean is the first to plan the curricula in 2 institutions, reviews and acts on them second in 8 instances and third in 2. He has final authority in 3 instances. The director of resident instruction acts second on curricula in 1 instance and third in 1 and has final authority in 1. An agricultural faculty committee plans the curricula in 16 institutions, acts on them second in 3, and third in 2 instances. It has final authority only in 1. The agricultural faculty sets up the curricula in 10 instances, acts second in 17, third in 4, and fourth in 2. Thus this faculty considers the curricula in 33 instances and has final authority in 11. An institutional faculty committee sets up the curriculum in 2 instances, acts second in 2, third in 4, fourth in 1, fifth in 2, and has final authority in 3. The university senate acts first on curricula in 1 instance, second in 2, third in 2, fourth in 5, fifth in 1, and sixth in 1 institution, and has final authority in 5. The institutional faculty acts second on curricula in 2 instances, third in 6, fourth in 2, fifth in 1, and sixth in 1, and has final authority in 7. The president acts first on curricula in 1 instance, third in 2, fourth in 2, fifth in 2, sixth in 1, and seventh in 1, and has final authority in 6. The board of trustees acts third with reference to curricula in 1 instance, fourth in 1, and fifth in 1, with final authority in each case. The board of regents acts on curricula third in 2 instances and eighth in 1, with final authority in all; and some other State agency acts last in 2 instances with final authority in both.

It is clear that both in courses offered and in curricula care is taken that no individual may act alone. In the majority of instances they pass for review before an individual and committee, two or more committees or faculties before they are approved and placed in the catalogue.

Trends in Agriculture Curricula

It is not possible to show full details of the various trends in instruction in the colleges since their organization, because reports were not sufficiently complete with reference to curricula or groups of subjects to draw a finished picture. This is true even when courses were listed with names, numbers, and credit hours and curricula were given in full. To evaluate with certainty the emphasis placed on any subject or group of subjects would involve going back of the names of the courses and the catalogue descriptions. These are indicative of the content of courses but of necessity omit much detail required for judgment. Complete course outlines or syllabi would be more useful, but even these would not furnish a basis for estimate of classroom emphasis. Such study is very desirable and might be conducted by individuals or groups within the institutions themselves but is not feasible in a national study. However, from the data on subjects and curricula reported in more or less detail for this survey, supplemented by the use of catalogues some of the major trends are indicated for the general curriculum in agriculture, or for the curriculum in agronomy where there is no general curriculum.

These curricula perhaps have been weighed and considered more than any others in the agricultural group. The major changes that have taken place since 1880 have been the gradual elimination of

foreign languages as a requirement, the reduction of the requirements in mathematics, physics, and chemistry, and increases in economics and in electives.

Ten institutions, including the universities of California and Maine, Massachusetts Agricultural College, the Mississippi Agricultural and Mechanical College, the universities of Minnesota, Nebraska, Tennessee, and Cornell, Rutgers University, and the Agricultural and Mechanical College of Texas, reported curricula as early as 1880–81. In all cases but four (Maine, Nebraska, Mississippi, and Tennessee) foreign languages were required at that time, ranging from 6 hours at the University of Minnesota to 15 hours at Cornell University. The average requirement of the group was 12 credit-hours. By 1890–1891 Cornell had reduced the foreign-language requirement from 15 to 6 hours, and by 1900 had dropped it altogether. The other five institutions mentioned retained the foreign-language requirement until 1910–11, and 18 other institutions (42 institutions reporting) then required foreign languages averaging a little more than 11 credit-hours. Between 1910–11 and 1920–21, 17 of the 23 had dropped the foreign-language requirement altogether, and the other six with one exception, had reduced the amount required. Of these 6 only 1 (Massachusetts Agricultural College) belonged to the group with the foreign-language requirement in 1880. By 1927–28 the foreign-language requirement had been dropped as a requirement in the general course by all except two institutions (Massachusetts Agricultural College and the University of Vermont).

Mathematics was reported as required in 10 institutions in 1880–81, including all institutions reporting curricula at that time; in 14 institutions, all reporting, in 1890–91; in 29 or 33 institutions reporting in 1900–1901; in 35 or 42 institutions in 1910–11; in 29 of 46 institutions in 1920–21; and in 28 of 46 reporting in 1927–28. From 1900 to 1927 the credit-hour requirement in mathematics decreased from an average of 9.5 hours in 29 institutions to an average of 2.5 in 28 institutions.

Physics was reported as required in the same 10 institutions as mathematics in 1880–81, in 12 out of 14 in 1890–91, in 27 of 33 institutions in 1900–1901, in 28 out of 42 in 1910–11, in 31 out of 46 in 1920–21, and in 25 out of 46 in 1927–28. The credit-hour requirement in 1900–1901 varied from 2.8 to 12, with an average of 6.2; and in 1927–28 from 2.4 to 8, with an average of 4.

Chemistry was required by every institution reporting for 1880–81 and for each year thereafter. In the first year mentioned the credit-hour requirement ranged from 2½ hours in one institution to 30 hours at the University of California, with an average requirement of approximately 18 credit-hours. In 1920–21 the requirement ranged from 6 to 20, with an average of 16 and an approximate median of 14. In 1927–28 the chemistry requirement ranged from 5 to 20 credit-hours, with an average of 11.7 and an approximate median of 12. Chemistry will remain as one of the important subjects in the agricultural curricula dealing with production and manufactures, since it is basic to much of the work given in such subjects as soils, nutrition, feeding, plant physiology, and a number of the dairy-manufactures courses. There is a well-defined tendency, however, in some institutions, to reduce the number of hours required by the elimination of certain subject matter in chemistry not considered essential to a proper understanding of the applied courses.

Work in economics was required in the general course in 1880–81 in the universities of California and Maine, Massachusetts Agricultural College, Rutgers University, the universities of Cornell and Tennessee, and the Agricultural and Mechanical College of Texas with a range of 2 to 4 credit hours and an average of 2.6. By 1900–1901, 16 institutions, out of 33 reporting, required economics in the general course with a range of 1⅔ to 7 credit hours, and an average of 4 hours. In 1910–11, 28 of 42 institutions reporting indicated economics as required in the general course with a range of 1.5 to 8 credit hours and an average of 4 credit hours. In 1920–21 economics was reported as required by 35 institutions of 46 reporting with credit hours ranging from 2 to 11 and an average of 4.5, and in 1928–29 this subject was reported by 35 of 46 institutions with credit hours required ranging from 2 to 11 and an average of 4.8. The increasing emphasis on subjects in economics is indicated both by an increase in the number of institutions in which they are required in the general course and in the number of credit hours required.

While there is a large variation between institutions in the strictly required hours of work in what are classified as agricultural subjects extending all the way from 20 to 59 hours, the average of 37 representative institutions in 1910–11 was 38.26, and in 1927–28, 39.25 credit hours, with an approximate median of 40 and 38.5 respectively. In the institutions where the least number of hours in agriculture is required generally, many more hours than those strictly specified may be elected and thus become a part of the curriculum of the student.

While the situation with reference to foreign languages, mathematics, physics, chemistry, economics, and the agricultural group indicate the trend of the requirements for these subjects in the general course, too much significance can not be attached to the figures given for the reason that electives have increased in larger proportion than the decrease in the credit hours in the subjects specified. In other words, while a student in the general curriculum is not now held to courses in languages, except in two institutions, or for as many hours in mathematics as formerly and is required to take fewer hours in physics and in chemistry, but more hours in economics, he has greater freedom in elective courses. If he is so inclined he may take as much or more work in the subjects named than formerly or he may take more work in English and literature, in economics, sociology and education. In order to determine what students are actually receiving in agricultural curricula detailed studies of student schedules are highly desirable but such investigation is beyond the scope of the land-grant college survey. Studies of this kind may well be undertaken by individual institutions or better by a considerable group of institutions in collaboration with each other.

Relative emphasis on the various subject-matter fields in agricultural instruction.—The emphasis given in agricultural instruction to the various subject-matter fields has been the subject of much discussion within institutions and by the general public. Do the colleges give too much attention to production and not enough to marketing and economic relationships between agricultural and other industrial groups or between agriculture and business? Are recent trends in the use of power on the farm and the development of commercial agriculture given the consideration that they should have? Are rural education and the social relationships of rural people given sufficient emphasis?

One significant indication of the trend with reference to these matters is found in the departmental organization within the agricultural group. In the areas of agricultural economics and marketing especially the agricultural divisions show a significant develop-

ment of departments appropriate to these fields. From 1916 to 1927–28, a period of 12 years, 25 departments in agricultural economics (under different names, such as agricultural economics and farm management, rural economics, economics and sociology, marketing and rural finances) have been organized in as many colleges out of 42 reporting on this point, while during the entire previous history of the institutions only 7 such departments were reported. Although courses in economics were given in practically all these institutions before the departments were organized and are now given universally in the land-grant colleges, larger emphasis on these subjects has come with the organization of departments whose primary function it is to study and teach phases of economics which have a special and intimate relationship to agricultural marketing and finance, the use of land, farm organizations, and rural movements. Rural social conditions also are given considerable attention in these or other departments of many institutions.

The emphasis on subjects relating to the rapid development of farm machinery and to the increasing use of power in agriculture is indicated by the organization of agricultural engineering departments (under such names as agricultural engineering, farm mechanics, farm machinery, and rural engineering) in 24 institutions since 1901, 17 of which have been established since 1911. Where such departments have not been organized agricultural engineering subjects are taught in other agricultural departments or in the engineering group.

Beginning with the period 1906 to 1910 much thought has been given to problems of rural education. Departments of agricultural education (under such names as agricultural education, rural education, vocational education, vocational teaching, and rural vocational education) have been organized in 22 institutions of the 44 reporting. Three of these came during the period 1906–1910, 6 from 1911 to 1915, and 13 from 1916 to 1928. In the remaining institutions this work is given in some other department. The development of agricultural instruction in the high schools of the country under the Federal Smith-Hughes Act since 1917 has given much impetus to this work.

In addition to the evidence of development in instruction afforded by creation of departments devoted to specific fields the facts regarding course offerings furnish significant testimony concerning emphasis and distribution among subjects. From the data that have been assembled concerning the type and number of courses offered and the enrollments in them for 1927–28, Table 8 has been prepared showing certain major groups of courses, the number of institutions reporting on each group, the average number of courses with credit hours and the average number of student credit hours of enrollment. The result is an indication of the work given during 1927–28 in

economic and other fields. Although the table represents the offerings of no single institution it is of interest as indicating the national situation with reference to agricultural offerings. In the groupings used, crops and soils are included in agronomy, plant and animal breeding with genetics, although in most institutions they are offered in agronomy or animal husbandry; feeding courses with nutrition; farm buildings with agricultural engineering; agricultural economics with economics; and bees with entomology.

TABLE 8.—*Courses in the 4-year curricula in agriculture conducted in 1927–28 with the number of institutions reporting for each group, average number of courses and credit hours given, and average undergraduate student credit hours enrollment*

Courses given	Number of institutions reporting	Average number courses given	Average number credit hours	Average number student credit hours enrollment
1	2	3	4	5
Agricultural engineering	37	10	22.1	361.2
Agronomy	43	13	30.5	615.4
Animal husbandry	42	10	22.8	415.7
Bacteriology	27	5	13.1	238.7
Dairy production	39	9	15.4	239.1
Dairy manufactures	38	5	11.3	111
Economics	36	11	27.2	721.4
Entomology	33	7	17	224.7
Farm management	35	3	6.7	114.6
Floriculture	20	4	11.3	107.5
Forestry	20	13	29.2	501.6
Genetics and plant and animal breeding	40	5	13	182
Horticulture	40	11	26.7	332.9
Landscape gardening	27	4	12.5	222.6
Nutrition and animal feeding	33	2.9	7.9	132.1
Plant pathology	26	5	12.8	117.8
Poultry	38	5	11.4	166.6
Veterinary science	29	3	9.1	132.4
Vocational education	25	8	17.7	286.9

The table shows that a larger emphasis as indicated by student credit-hour enrollment is given to agronomy than to any other group of subjects. Agronomy deals with plants and plant growth, field and forage crops and the soils in which they are produced; in other words, plant life, its environment, and many of its relationships. These matters are basic to the agricultural industry and, therefore, will always be emphasized in agricultural curricula. Horticulture, plant pathology, and entomology also deal primarily with plant production and add further to the emphasis given to production.

Next come animal husbandry, dairy production, and poultry production. These with veterinary science, nutrition, and feeding constitute a group of subjects dealing with animal production. They will always receive emphasis for the same reason that plant production is emphasized. Genetics and plant and animal breeding are closely related to plant and animal growth and development and

will remain in offerings for agricultural students. It is clear that only when plants and animals have been produced is there anything to market, and economy and efficiency in production in themselves are of large importance.

What the table shows about offerings in the economics group, including general and agricultural economics, is of special interest. The average total number of student credit hours of work in economics in 1927–28 as shown by the table is larger than in any other single group. Agricultural economics to-day generally receives more attention in agricultural curricula than at any previous time. Not only are the students in many curricula required to take a certain number of credit hours in economics, but special curricula or groupings have been arranged in many institutions in which a student may either specialize in agricultural economics, agricultural business administration, or agricultural administration, or take a large number of elective hours of work in this field in connection with general and special curricula. For instance, dairy manufacturing in many institutions is now a highly specialized marketing group although many courses listed in it are taken by students in the more general curricula. Moreover it should not be overlooked that in the so-called production course much time is devoted to the study of standards, preparation for market, market handling, market requirements, and market outlets. These phases are emphasized and receive consideration, therefore, both in production and in marketing courses and much is contributed in this way to the understanding of the economics of agriculture.

Agricultural engineering holds an important place in many of the agricultural curricula with an average of 361.2 student credit hours for the 37 institutions reporting on this group. This is more than half as much work as is given in agronomy which includes both crops and soils, and is evidence of the emphasis on this subject in agricultural instruction. The progress made in recent years in the use of machinery and of power to lighten human labor have made it necessary that the institutions emphasize increasingly the operation and use of machinery and equipment and the application of power to farm tasks.

Landscape gardening and floriculture are finding a permanent place in agricultural curricula in many institutions. As the country grows older more and more attention is given to home surroundings. Orderly and beautiful farmyards, homes, and countrysides contribute much to rural contentment and happiness. The professional curricula in these subjects are proving attractive to a considerable number of students, both men and women, as preparation for a distinct profession or as interesting curricula of general educational value.

Forestry is one of the major lines of emphasis in many land-grant colleges, 20 reporting an average of 13 courses in forestry with a total of 29.2 credit hours and 501.6 student credit hours enrollment. The comparatively large number of courses is due to the fact that all phases of forestry are included. The average student credit hours enrollment in the 20 institutions is larger than in any of the other subject-matter groups with the exception of agronomy and agricultural economics. Not only are there many enrollments in professional forestry and a considerable number of graduates in forestry from the land-grant colleges each year (see Table 17), but forestry courses are required as service courses in connection with farm forestry and range management. With the increasing emphasis upon reforestation, replanting of denuded areas, the planting of waste lands with forest trees, forest grazing, prevention of soil erosion, flood control, and protection of growing forests, the interest in forestry is likely to continue.

The comparatively large emphasis on the subjects in vocational education, as already indicated, is the result primarily of the establishment of agricultural instruction in the high schools under the Smith-Hughes Act. It was early realized that to teach agriculture in the high school satisfactorily is perhaps more difficult than to teach many other subjects, since this involves not only classroom and laboratory instruction but practical work on the farms in the communities where the Smith-Hughes schools are located. It has been considered necessary, therefore, to develop a technique or method of teaching which makes possible a close correlation between what a boy of high-school age does in school and his work on the home farm. Those who are planning to teach vocational agriculture are required to take considerable work in vocational education.[10]

Specialization in courses and curricula and class enrollment.—Specialization in subject matter in agricultural courses and in agricultural curricula is the general practice and is the result of a number of causes. First is the general necessity for specialization in practically all lines of endeavor in professional work, in industry, and in practical agriculture. The general practitioner in medicine, for instance, has given place more and more to the physician who specializes in certain diseases and to the surgeon in certain types of surgical cases. The merchant no longer sells meats, groceries, clothing, shoes, oil, and gasoline, but meat shops, fruit stores, groceries, men's haberdasheries, shoe stores, and service stations for gasoline and oil are now the rule. The farmer, in spite of much exhortation to the contrary, keeps right on specializing in the production of

[10] See Vol. II, Part III, "Teacher training," pp. 113, for more detailed discussion of agricultural teacher training.

grain or hay, in poultry, milk, apples, pears or cherries, truck crops, flowers, and even foxes. He has found that with a reasonable degree of specialization he obtains the largest economic return.

The agricultural institutions are called upon to meet the new situation and to provide instruction relating to the many specialties on the farms and to many business enterprises such as the feed and seed business, the fertilizer business, and the farm machinery business and others closely associated with the farming industry. For this reason if for no other, the agricultural institutions have found it necessary to offer numerous courses, many of them highly specialized in character.

Agricultural teachers to become authorities in their lines have found it necessary to specialize in comparatively narrow fields since the subject matter in any one field now is so voluminous that no one can hope to be fully informed in many. The student who comes to study agriculture wants work in some particular line. He is interested in dairying, poultry, horticulture, animal husbandry, or other specialized fields, and thus reflecting the situation on the farms and in agricultural business. All these forces and influences have been working in one direction—specialization in courses and in curricula.

There are also some less legitimate reasons which have had considerable influence in this direction. A teacher who does much research as a member of the staff of the agricultural experiment station for instance, becomes so engrossed in his specialty that it looms exceptionally large in his own thinking. He tends to divide and subdivide the subject into its highly specialized details. The courses that he offers reflect much of this detail.

Specialization in courses has made it necessary to adopt devices whereby a student may not have his energies scattered as a result of pursuing a large number of detailed, unrelated courses. The preparation of set curricula in which related and supplementary courses are grouped according to the best judgment of a department, the agricultural faculty, and the dean; the arrangement of departmental groups of courses from which a student must select a number; the adoption of a system of majors and minors in which a student must take a certain number of hours of related subject matter in one department or field as a major, and a smaller number of another department or field as a minor; and the arrangement of the curriculum so as to cover a more general field during the first two years and some special field or fields during the junior and senior years, are devices to permit specialization and still keep it within bounds.

In six institutions the organization of set curricula is the practice. In 13 institutions departmental groupings of courses are arranged and the student selects his work on the basis of so many required hours in each grouping.

Arrangement of curricula by majors and minors is the practice in five institutions, and in four others free election of specialized courses is permitted. A combination of any two of these methods such as a set curriculum with a number of free electives, majors and minors with free electives, or departmental groupings with majors or minors are practiced in the others.

Service Courses for Agricultural Students

A large part of the subject matter for students in agricultural curricula is in other subjects than those offered by the agricultural staff. Included here are frequently the basic sciences, chemistry, physics, botany, zoology, and geology and universally English, literature, languages, music, and other humanistic subjects. More than one-half of all work taken by students in the 4-year agricultural curricula is in subjects belonging to these groups.

It is at once evident that if the agricultural curricula in the land-grant colleges are to be satisfactory, a high grade of work in these service courses is essential. Not only is an able and well-trained staff for this work necessary, but its members should understand the relationships of these subjects to the basic and applied courses in agriculture. This work provides the means whereby the agricultural student is assisted to get a vision of the relationships between agriculture and the basic sciences, between agricultural industry and other phases of economic life, and between the rural and other elements of society.

Where service courses are not satisfactory and changes are necessary or when additional service courses are needed this usually becomes the subject of discussion and negotiation between the departments involved.

These discussions are arranged either by the departments themselves, by the deans' offices, or by both. In 19 institutions both these officers and the departments take part in these conferences, in 11 the departments alone, and administrative officers alone in 2. A standing committee handles the matter in 9 institutions, cooperates with the administrative officers in 5 instances, and the agricultural faculty in 2, and the faculty cooperates with the administrative officers in 4.

If these conferences, however handled, are conducted with a view to promoting the best interests of the student and selfish departmental interests are disregarded, they should contribute to better understanding and agreement as to new service courses needed or changes that should be made in existing courses. Nevertheless such consideration in the abstract or upon the basis of existing knowledge will never solve all the problems involved. Continued and thorough-going experimentation in educational values and results under controlled conditions must afford a new basis for dealing with course and curriculum offerings. This process is hardly started in the land-grant institutions.

Service courses in the basic sciences are regarded as generally satisfactory in 22 of the 35 institutions reporting on this point, some satisfactory and some not satisfactory in 4 and unsatisfactory in 9. There is little criticism of the technique acquired by students in these courses. The most common complaints are first, that they fail to bring out the relationship between the basic sciences and their agricultural applications; second, that the courses are limited to specialized aspects not desired by students of agriculture; and third, that the courses do not give adequate preparation in knowledge of facts and principles needed in the courses in agriculture.

The service courses in the humanities are more generally regarded as satisfactory. Only three institutions report that they are not. One says that the custom is to take it for granted that what is presented in such courses is satisfactory, while another says that the elective English courses do not quite fit the need of agricultural students, many of whom have no background of good English usage. Since the English teacher has a duty to all the students of the institution, whether in agriculture, in engineering, in home economics, or in sciences and arts, it is not to be wondered at that there should be some criticism of the services given to students of certain applied curricula.

On the other hand, because of the high specialization in so many of the courses offered, it often is difficult for agricultural students to obtain satisfactory electives in English. The teachers of English quite frequently and very naturally think in terms of the major in English and give work accordingly rather than for the purpose of meeting the needs of students in applied fields. The result is that English and other liberal subjects, excellently taught from the liberal standpoint, fail to function as a liberalizing element in the agricultural major. There is abundant opportunity for teachers of English to exercise ingenuity in the selection of materials for discussions, themes, and papers for the students specializing in the various applied curricula.

One result where service courses are not satisfactory or where there is considerable difficulty in keeping them so, is a tendency in some institutions to duplication of courses between the arts and sciences and the agricultural unit. For instance, if plant physiology is not given satisfactorily to agricultural students by the department of botany, the horticultural department may offer a course in plant nutrition or nutrition of horticultural plants which measurably parallels the regular course in plant physiology. There are similar opportunities for duplication in bacteriology, chemistry, entomology, geology, and physics and perhaps others. Although 35 institutions

report that there is no tendency in this direction, other evidence indicates that this field needs careful consideration and study in every institution.

Within the agricultural division itself there are many places where duplication may occur, as in animal nutrition, plant and animal breeding, crops and soils, and in management courses. Through close cooperation between departments as reported by 36 institutions, supplemented by course syllabi in eight, and working back from curricula to courses rather than from courses to curricula in seven, and by the careful attention given to this matter on the part of department heads and deans of agriculture, it is the judgment of 38 institutions that there is no undue duplication in courses within the agricultural unit. Only three report that such duplication exists. It is probable, however, that if a careful study of this matter were made by individuals or committees in the various institutions, a good many instances of excessive overlapping would be found, with consequent opportunity for correction and improvement.

Certain subjects required in agricultural curricula and where they are taught.—A number of subjects required in the curricula for students in undergraduate agriculture may be offered in one or more than one of two or three major divisions of the institution. These subjects and where they are taught are indicated in Table 9. The emphasis given these subjects, the number of students selecting them, administrative convenience, personnel, and costs, are some of the factors which help to determine in which departments or major divisions they are placed. Their position in the organization often influences the manner in which they are taught and their subject-matter content. When, for instance, agricultural chemistry is given by the college of agriculture, it is entirely likely that the teaching staff is selected partly on the basis of its appreciation and understanding of the relations between so-called pure chemistry and chemistry applied to agriculture and that these relations are made more clear in the classroom and laboratory than if the subject is given in a department of chemistry in which the purpose may be to develop chemists and chemical engineers. On the other hand, when chemistry is taught in the agricultural division it may be that the broader aspects of the subject are not sufficiently emphasized and that the relation of agricultural chemistry to industry is not brought out as clearly as when taught in a division that serves students in a number of allied fields. Careful detailed study should be made upon a comparative basis in order to determine the facts with reference to these matters and the effects of different practices upon the subsequent work of students.

TABLE 9.—*Subjects required in agricultural curricula and major divisions in which they are taught*

Subject	College of agriculture	Arts and sciences, science, applied science, industrial science, and liberal arts	Other
1	2	3	4
Accounting	[1] 18	11	16 in business administration, commerce, or economics.
Agricultural chemistry	19	23	3 in chemistry.
Agricultural economics	35	5	5 in business administration, commerce, or economics.
Agricultural education	26	4	15 in education.
Agricultural engineering	38	----------	6 in engineering or architecture.
Animal breeding	45	----------	
Bacteriology	22	23	2 in veterinary science; 2 in medicine.
Botany	[2] 17	31	
Drawing	[3] 13	9	[5] 23 in engineering or architecture.
Entomology	33	14	
Genetics	[3] 35	13	
Home economics	20	4	19 home economics and women's colleges; 3 education.
Landscape art design	36	3	1 education; 3 engineering or architecture.
Plant materials	37	2	1 education.
Marketing	34	6	6 in business administration, commerce, or economics.
Physics [4]	[5] 5	37	6 engineering or architecture.
Plant breeding	44	1	
Plant pathology	28	19	
Plant physiology	19	28	
Zoology	[3] 14	33	

[1] 5 in part only, the remainder in commerce, business or science, and arts.
[2] 3 in part only.
[3] 1 in part only.
[4] In school of physics in 1 institution and physics and chemistry in another.
[5] 2 in part only.

In this connection it is interesting to note that agricultural chemistry is taught as a part of the work of the college of agriculture in 19 institutions, in the arts and sciences division in 23, and in a school of chemistry in 3. The majority of institutions apparently feel that the work given in chemistry when taught in other divisions than agriculture is satisfactory for agricultural students.

Agricultural engineering is a part of the work of the college of agriculture in 38 institutions and of engineering colleges in 6. Where it is taught in the college of agriculture, the phases of engineering which deal with its application to farm structures, to drainage, to farm machinery, to equipment of all kinds, and to use of power on the farm are more likely to be stressed than when it is taught by the staff of the college of engineering where basic principles of design and construction are emphasized.

The work in agricultural education is handled as a part of the work of the college of agriculture in 22 institutions, in the school of education in 15, and in arts and sciences in 4. Where it is in the college of agriculture the teaching personnel is more likely to be selected because of training in agriculture and because of practical agricultural experience than if selected by the school of education.

As a result the student will feel just as much at home in the agricultural education classes as he will, for instance, in a class in agronomy. He is more likely to select vocational educational subjects as a part of his curriculum where they are given in the college of agriculture than in the school of education. Undoubtedly these are some of the reasons why agricultural education is made a part of the work of the college of agriculture in the majority of institutions. On the other hand, such emphasis has sometimes resulted in the employment of teachers poorly trained in education. When the staff in agricultural education is a part of the school of education rather than of agriculture, the professional attitude is encouraged. Membership in both faculties is a device that has been quite generally overlooked. It would seem to have advantages.

The fact that agricultural economics and marketing in 35 and 34 institutions, respectively, are a part of the regular work in the college of agriculture and of other colleges or divisions in 10 and 12 institutions, is significant of the stress placed upon these subjects in agricultural instruction in recent years. As indicated elsewhere in this report, they are rapidly becoming as much a part of the curricula in agriculture as agronomy or animal husbandry.

That botany, zoology, and physics should be handled oftener in the division of arts and sciences than in the college of agriculture is to be expected. These subjects constitute a large and important part of a number of the curricula and may be taken to advantage in that college by the agricultural student. Genetics, which is stressed particularly in plant and animal breeding, fits into the work of the colleges of agriculture and is given there by 35 institutions out of 48. Service courses in this subject for those in other divisions are offered by the agricultural teaching staff.

It should not be overlooked that in some institutions it is not desirable or practicable to segregate entirely all applied courses from the corresponding departments in arts and sciences or in engineering, as the number of students enrolled may be too small to justify the procedure from the standpoint of expense. However, when the student enrollment is sufficient, the expense may be no greater if the applied work is segregated from the basic work. Laboratories and equipment as well as teachers have to be provided in any case. The situation with reference to the place in the organization of most of the subjects discussed is deserving of careful study and review in every institution. The guiding principle at all times should be the best service possible to all students, commensurate with the funds available, whether such students are in agriculture, engineering, home economics, arts and sciences, or in some other major division of the institution.

Farm Practice Requirements

In many institutions there is a considerable enrollment of students in agriculture who have had no farm experience. Since it is felt that all students who receive an agricultural degree should be more familiar with farm practice than is possible through the laboratory work incidental to the courses taken, and since a large amount of practice is not logically a part of a course of college grade, many institutions require practical experience away from the college before the agricultural degree is granted. Twenty-six of 45 institutions require additional experience to that received in college courses. Only in 14 of these, however, is it required of all students in agriculture and only in 6 is the work supposed to be an integral part of the regular courses in the curricula.

Those who major in botany or plant pathology, in agricultural chemistry, in entomology, in forestry, in landscape art, and in floriculture, and in certain cases students from foreign countries generally are exempt from the experience requirement. In five institutions where certain students are not required to have farm experience they must acquire experience in other work appropriate to the specialty which they are studying. Students in forestry are often required to spend one or more summers in practical forestry with the forestry service of the State or Federal Government or with logging and lumber companies. Students in floriculture and landscape gardening may be required to take work in growing of flowers and ornamentals under glass, or in the park service of cities. Only in a few instances is this practical work provided for at the institutions themselves.

Where practical experience is required it is expected that it be completed before the beginning of the junior year in 1 institution, before the beginning of the senior year in 17, and any time before graduation in the others. The practice work requirement is administered by the office of the dean of agriculture in 10 institutions, by the departments involved in 10, and by other arrangements in the remainder. Supervision in the nature of occasional visits by staff members upon students doing practice work is provided by 3 institutions. Detailed reports of practice work done is required from the students in 15 institutions and in 6 of these cases also from the employer. In 4 instances reports from the employer alone are requested. Practice work equivalent to at least 3 months is required in 9 institutions, 6 months in 10, and 1 year in 3. None have a requirement of more than 1 year. The kind of practice work to be done is determined in various ways. In 4 institutions this is the duty of a special officer in charge, of a faculty committee in 4, and of the departments concerned in 11.

For those without experience, practice work in addition to that which may be secured in laboratory exercises has been considered very desirable. It has seemed reasonable to suppose that it should help students to understand and appreciate the work in applied courses or to aid them to discover mistakes in their choice of training at a time when the error can be remedied. When a student has completed his curriculum it is easier for the young man who has had experience to find a suitable position than it is if he is inexperienced. In spite of these advantages, however, it is desirable that case studies be made to determine the facts in regard to the effects of farm practice requirements, both educationally and practically. Such an investigation is justified by the number of institutions that do not have practice requirements.

Chapter VI.—Agricultural Students

There is much interest on the part of the public in higher education, but understanding and appreciation of what an institution has to offer, or what higher education really means, are rare. It is the duty, therefore, of every State-supported institution to make its aims, purposes, offerings, and facilities known to the public and to young men and women. Such informative activity should not be regarded as advertising or propaganda. It should be regarded rather as an explanation due to the people who support the institutions. They have a right to learn of the opportunities offered to young men and women by virtue of public taxation for institutional support. Acquainting prospective students with offerings in undergraduate agriculture is a part of this important duty. How it is done and an estimate of the effectiveness of the methods used is shown in Table 10.

While 45 institutions reported on methods used, only 26 gave an estimate of their effectiveness. It is clear that in the judgment of these institutions cooperation with Smith-Hughes teachers, with alumni, with extension workers, and with high-school principals, and special care in correspondence with prospective students lead in effectiveness. This is to be expected, since such contacts are personal in character. Smith-Hughes teachers of agriculture and county agents almost universally are agricultural alumni, and therefore they and alumni in other occupations are in the best position to enlighten and interest young men and women in college work.

TABLE 10.—*Methods used to acquaint prospective college students with work offered in agriculture and an estimate in the order of their effectiveness as reported by 45 institutions*

Methods used	Number of institutions using method	Order of effectiveness							
		First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth
1	2	3	4	5	6	7	8	9	10
Special literature	37	3	2	8	2	3	3	----	1
College news service to weekly newspapers	31	1	5	3	3	3	2	1	----
Cooperation of high-school principals	29	4	4	3	2	1	2	----	----
Cooperation of Smith-Hughes teachers	40	12	5	3	3	1	2	----	----
Cooperation of extension workers	39	4	7	4	1	3	----	2	1
Cooperation of alumni	38	7	4	5	1	1	1	2	3
Special field man to visit prospective college students	7	1	1	----	----	----	----	1	1
Meetings of Smith-Hughes students at college	29	3	5	1	3	1	----	2	1
Meetings of 4-H Club members at college	36	4	2	3	4	2	3	2	1
Special care of correspondp ence with prospective students	35	7	2	2	1	1	2	1	----
Other means	9	5	----	1	1	----	----	----	----

Entrance requirements for agricultural students.—The general entrance requirements for agricultural students are, as a rule, identical with those of students enrolling in other divisions of the institution and usually specify a certain number of units of high-school work or their equivalent. In some instances a certain grade of work in secondary schools as indicated by the student's record is necessary for enrollment. Special requirements, such as certain courses in mathematics or in foreign languages, may be specified in engineering and in arts and sciences; in agriculture such specifications usually are lacking. The students from secondary school curricula in agriculture (Smith-Hughes) are admitted to the regular 4-year agricultural curricula in all institutions (43 reporting). In Vermont they are so admitted provided they comply with the regular entrance requirements, which permit of five and one-half free elective units. In Massachusetts Agricultural College students of this type are admitted to a course leading to a special degree.

Special students are admitted to the 4-year agricultural curricula in 39 of the 43 institutions reporting. Practically a universal requirement for special students is that they shall be 21 years of age or over. Two specify 20 years of age, and one 23, and four used the word "mature" instead of giving the age. It is understood also, and is specified in several instances, that they must demonstrate ability to carry the courses in which they register.

Special students usually are mature and come for a specific purpose. If after a conference with the department head or the dean of agriculture it is believed that they can handle the work in which they are interested, they usually carry their courses with facility. The experience of many institutions justifies the practice of admitting them to regular courses. Many young men of ability of 21 years of age or over have not had the opportunity to acquire a secondary school education. Such men often are well-read, well-informed, and are capable of handling the college work. State-supported institutions undoubtedly should be in a position to give them this privilege when they want it and as they need it.

Admission of students to short courses in agriculture of less than 4 years but of at least 12 weeks duration is on an entirely different basis in most institutions. These courses usually are of secondary grade and are so planned that those who have a common-school education may enroll with benefit. The usual provision for enrollment in these courses is completion of the equivalent of eighth grade work and the attainment of the age of 16, 17, or 18 years. In a few instances the ability to read and write is the only requirement specified. Completion of two years of high-school work is required in one instance and experience of two years or more in farming in two instances.

Transfers from Other Institutions

Because of the large number of private colleges and because of the growth of junior colleges, applications for admission to the agricultural colleges with advanced standing are frequent. Applicants who have had two years of college work may reasonably expect to be able to receive a bachelor's degree in agriculture in two additional years, whatever subjects may have been covered previously. This is possible when the first two years work has been of a character to fit in with the curricula in agriculture or when there is a large flexibility in the latter, with much opportunity for electives. When this is not the case, it may take more than two years to complete the work in an agricultural curriculum even though a student may have already completed satisfactorily two years of college work. For instance, much of the applied work in agriculture has prerequisites in the general sciences and the necessary work in these sciences and in agriculture usually can not be covered in two years time. Definite plans for coordination and integration of the first years of the curricula in these colleges and the curricula in agriculture in order that transfer of students between them may be facilitated are reported from 13 institutions.

The University of Nebraska reports that junior colleges in Nebraska are organizing their curricula in cooperation with the university examiner so as to correlate the work in sciences and other subjects with similar work of the university, thus making graduation possible in two years. The Utah Agricultural College reports that junior colleges have their courses so arranged as to be similar

to the first two years at the agricultural college. The University of Tennessee reports an arrangement with one college whereby students may take there the equivalent of two years of work consisting of English, first courses in science, agriculture, and mathematics and then complete the work at the University of Tennessee. At the University of Idaho the branch of the university at Pocatello has a 2-year curriculum. This is so outlined that two years in the agricultural curriculum may be taken at that branch and two years at the university at Moscow permitting graduation at the end of four years. Iowa State College reports that three years of work at a private college followed by two years in agriculture at the Iowa State College permits the giving of a degree from both institutions.

In Ohio arrangements have been made by the university and certain of the smaller colleges whereby students attend three years at the cooperating college and two years at the college of agriculture. At the end of the four years the Bachelor of Arts degree is conferred by the cooperating college and at the end of five years the degree of Bachelor of Science in Agriculture is conferred by the Ohio State University.

In every State where there are private colleges or junior colleges whose students in considerable numbers may wish to secure college training in agriculture, it is desirable that these institutions and the land-grant college in the State in which they are located take steps to facilitate the transfer of students from one institution to the other with little or no loss of college credit. Clearly, however, it would be wasteful and otherwise inadvisable for the junior colleges and private institutions to attempt to secure the expensive facilities required to teach agriculture upon the college level in order to accomplish such ease of transfer. It would appear that such adjustments as are advisable should be made by the agricultural college. It is probable that change of objective on the part of the student will always entail some apparent loss of time.

The Smith-Hughes student.—Advanced credit toward degrees in agriculture is nowhere granted for agricultural courses taken in Smith-Hughes schools or in other secondary schools. In a comparatively few instances certain college courses may be omitted by those who have taken Smith-Hughes work and more advanced courses substituted. Connecticut Agricultural College, the universities of Florida, Maine, Minnesota, Tennessee, and Wyoming, and the State College of Washington report from three to six freshman agricultural courses where this practice is permitted. Such courses usually are introductory, similar to or identical with those given in practically all the agricultural institutions of the country to all students, many of whom have had no agricultural work. They are comparable to

beginning courses in chemistry, which, in some institutions, freshmen who have had good high-school courses in chemistry may omit, substituting more advanced work.

The problem of properly caring at the same time for the student who has had no agriculture and one who has had from two to eight units in Smith-Hughes high schools has not yet been solved. It may be necessary in the future to give some introductory courses in agriculture to all students who are not from the farm and who have had no agriculture and to raise the level of the regular required courses given to students who have had much farm experience or agricultural work in secondary schools. In no institution reporting have special sections for Smith-Hughes students been established. Apparently it has been impossible to work out a plan whereby this could be done.

The logical process in evaluation and passing on entrance credentials of all regular and special students as well as those with advanced standing would seem to be for all credentials to go to the central office of the institution for handling whether that be known as the registrar's office, the office of the director of admissions, or by some other name. From the registrar's office they may be referred in certain cases to the office of the dean of agriculture for review and record, and then returned to the registrar for permanent filing and reference. Students with advance standing may properly be referred to a special institutional or college committee for action and returned to the registrar for recording.

Special students usually come for a specific purpose and their cases undoubtedly should be referred to the divisions or colleges in which they wish to major, so that the dean of the division or special college committees may handle these cases with care and to the best satisfaction of the students and of the institution. Recommendation should then be returned to the registrar's office for action and record.

Student Registration and Guidance

The guidance a student receives through the four years contributes much to his success or failure. Many come to enroll with preconceived notions of what they wish to take, which do not fit in at all with the offerings of the institution or the sequence of work necessary to attain certain goals. They need careful guidance so that their work may be well arranged and so that they may not be discouraged. Others who are less individualistic should have equally good guidance throughout their college years.

The institutional advisory system is discussed in Part VI of this report dealing with student relations and welfare. The part of the agricultural college officers in such systems requires that the more experienced members of the faculty and those with a broad point of view be especially charged with student advisement. Normally these are the busiest men on the staff and because of this the advisory work is often given to younger and less experienced persons. Always, under any system, the way should be open for students to consult the dean or the director of resident instruction who presumably is not in-

terested in promoting any particular subject, as is the case occasionally with men who have highly specialized training. The advisory system, in spite of its limitations, gives opportunity for personal contacts of value both to students and to staff.

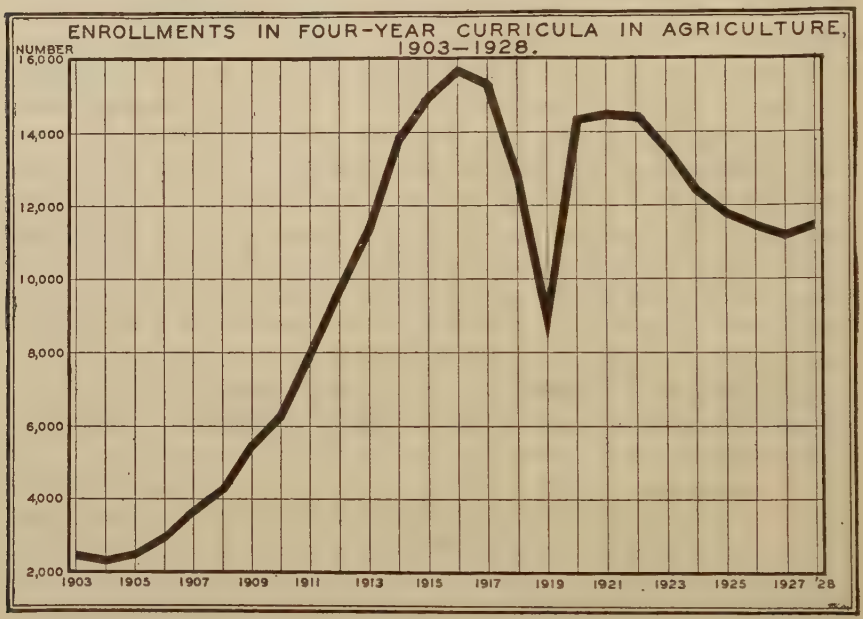
Student Enrollment

Student enrollment in agriculture in land-grant colleges until about 1890 was very small. The colleges had not been established because of any large public demand for instruction in agriculture of college grade. Moreover, following the Civil War there was rapid expansion of the farming area as the western fever took hold of soldiers and others alike and overproduction of agricultural products was the result. Transportation was difficult and very expensive. A mere subsistence from what was produced on the farm and a home were practically all the income that a farmer could obtain. Then came the panic of 1873 and extremely low prices for agricultural products. There did not seem to be any real reason why young men should enroll in courses to prepare for an occupation in which there seemed to be such small promise. Parents and those who took the rôle of farm leaders then, as in the period from 1920 to 1927, advised their sons and young men who were fortunate enough to go to college, not to enroll in agriculture but to study something else. Agricultural enrollment was not at all likely to increase under such conditions.

The depression of 1873 continued over a period of years and the prices of farm products increased very slowly. Some improvement in farm conditions came in the late seventies with a setback again in the early eighties. Not until 1903, according to the records of the Office of Education, was an enrollment of 2,405 students reached in the regular agricultural curricula of land-grant colleges. At about this time new departments were established, new courses introduced in agronomy, horticulture, and dairying, and beginnings were made in animal husbandry.

Demand for farm products improved and a much larger interest among farmers in agricultural methods and practices followed. Farmers' institutes were organized in many States, and college professors were in demand as speakers at these meetings. Here they talked of their experiments and of the results they had obtained and told how these could be applied in practice. Sometimes there were vigorous disagreements and the professors had to exert themselves to prove their point. Often they were right and what they proposed could be applied. Farmers began to have more confidence in the agricultural colleges and in their recommendations.

Coincident with this movement came improvement in the economic conditions on the farms because of better prices. Improved machinery and rapid extension of its use took some of the drudgery out of farm labor. Further agricultural employments in specialized fields other than farming developed with amazing rapidity. A gradual change in sentiment toward agriculture and agricultural education became evident. This was reflected by an increase in agricultural enrollments. By 1910 enrollments in the regular agricultural curricula had reached 6,255. The following chart shows the enrollments in the regular 4-year curricula in agriculture for this period.



With rising prices for agricultural products popular discussions of the high cost of living appeared in the general press, in journals, and in magazines. Experiment stations every year were turning out results that could be used. Good will toward and confidence in the agricultural institutions increased and by 1915, a year after the beginning of the World War, agricultural enrollment had reached a total of 14,886 students, considerably more than twice the number five years before. By 1916 almost 800 more or a total of 15,669 were enrolled.

The agricultural colleges were in prosperous condition when in 1917 this country entered the Great War. The response of the young men of college age was immediate. They enlisted in large numbers. The draft then went into effect. The effect on enrollments in agriculture as well as in other college work was immediate and by 1918–19

only 8,853 agricultural students were enrolled, the smallest number since 1912.

The war closed. In the fall of 1919 there was a great rush to the colleges which continued through the following year. At first it was felt in agriculture as well as in other lines. The slogan "Food will win the war," the demonstration of the dependence of the nations on food, the prices for food products during the war period resulted in a higher regard for agriculture than at any time in its history. The farmer's reaction was that of unbounded faith in his occupation and in its economic outlook. Those not in farming were impressed by the unusually high price level. The result was an immediate increase in college enrollments—14,275 agricultural students in 1919–20 and 14,493 in 1920–21, an increase of more than 60 per cent since 1918–19. In addition, this regular enrollment was augmented by a large group of special students, most of them mature men who did not have the necessary entrance credits but who desired to benefit by the opportunities that colleges offered.

These conditions did not continue. By 1920–21 came deflation and the prices of farm products were soon cut in two. In a few months the great depression in agriculture which was to continue over an indefinite period had arrived. The impossibility of making both ends meet on many farms, the lengthened days of labor, the economies that had to be practiced, and the profound disappointment of farming people during this period will never be fully appreciated by those who did not experience some of the hardships of those days.

Business closely related to agriculture also suffered. Farmers were not able to purchase the farm machinery or make the improvement they desired and needed. They felt compelled to use less fertilizer. Much livestock, especially beef cattle, had to be sold for what it would bring and feed consumption was reduced. Only a minimum could be spent for seeds and plants. All this was reflected in reduced business volume in farm machinery, fertilizers, feeds, and seeds—business enterprises in which many agriculturally trained men are engaged.

The reaction from the situation on the farms and in agricultural business was felt in the colleges. Farm leaders talked about the low estate of agriculture. Others did likewise. Farmers themselves advised and urged their sons not to go into agricultural work. If they went to college let them study business, the professions, anything so that it did not lead back to the farm. After such advice only those cared to enroll in agriculture who had deep personal interest in agricultural science and agriculture as an occupation or who planned to equip themselves for such work as that of county agents and agricultural teachers. The result was that students who en-

rolled in agricultural curricula were very much in earnest but their numbers grew smaller from year to year. By 1924–25 the regular agricultural enrollment had dropped to 11,715, by 1926–27, to 11,179, a point lower than in 1914. Only in 1927–28 did the tide seem to turn and agricultural enrollments slowly begin to increase. This was continued in 1928–29 and in 1929–30.

The changes that took place in agricultural enrollment during the period 1920–21 to 1927–28 are illustrated in Table 11 which shows the enrollments in agriculture during that period in 44 institutions.[11] It is clear from the table that the tide turned in freshman enrollment in 1925–26 and there has been an increase in the number of freshmen each year since that time. In 1927–28 this increase was reflected in the sophomore and junior classes so that the total enrollment in agriculture again appears to be increasing.

TABLE 11.—*Enrollments in agriculture 1920–21 to 1927–28 by classes in 44 institutions reporting*

Class	1920–21		1921–22		1922–23		1923–24	
	Men	Women	Men	Women	Men	Women	Men	Women
1	2	3	4	5	6	7	8	9
Freshmen	4,554	95	4,004	88	5,188	86	3,831	139
Sophomores	3,504	76	3,151	69	2,987	69	2,912	85
Juniors	2,334	63	2,747	59	2,489	61	2,360	66
Seniors	2,137	54	2,167	64	2,615	62	2,443	59
Total	12,529	288	12,069	280	13,279	278	11,546	349
Number graduated	1,176	39	1,303	53	1,533	37	1,473	49

Class	1924–25		1925–26		1926–27		1927–28	
	Men	Women	Men	Women	Men	Women	Men	Women
1	10	11	12	13	14	15	16	17
Freshmen	3,784	92	3,957	131	4,183	102	4,299	90
Sophomores	2,797	72	2,611	95	2,729	61	3,052	76
Juniors	2,219	67	2,105	75	2,035	72	2,166	65
Seniors	2,326	63	2,179	76	2,068	69	2,013	69
Total	11,126	294	10,852	377	11,015	304	11,530	300
Number graduated	1,345	52	1,355	48	1,283	83	1,212	63

The land-grant colleges studied the situation during the lean years and made a large number of adjustments in curricula to meet the new conditions. The emphasis since the war has been upon prices, costs, and how these may be reduced; management and the use of labor-saving machinery; and upon marketing. This emphasis in the agri-

[11] These figures do not agree with the official figures from the Office of Education quoted above, since they include only the data sent by institutions in connection with the land-grant college survey, and these include some forestry students.

cultural curricula in the land-grant colleges has provided courses in economics, in agricultural engineering, and in farm management. New curricula in commerce, agricultural administration, and agricultural business have appeared. A more settled condition in agriculture and a more logical and orderly thinking and interpretation of trends in agriculture and in industry also tend to show that the possibilities in agriculture are larger than the conditions of the last few years would seem to indicate.

Enrollments in forestry in the land-grant colleges and universities were first reported with accuracy in 1902–1903. The trend was steadily upward until 1913–14. (See Table 12.) The decline that then set in was especially marked during the first year of the war. With the close of the war forestry enrollment again increased and in 1927–28 there were 1,076 students enrolled in the professional forestry curricula of the land-grant colleges. In addition, many agricultural students were taking such courses as farm forestry, general forestry, and range management as electives.

TABLE 12.—*Enrollment of students in forestry in land-grant institutions*

	Enrollment		Enrollment
1902–3	66	1915–16	374
1903–4	26	1916–17 [2]	347
1904–5	45	1917–18	152
1905–6	61		
1906–7 [1]	114	1918–19 [3]	
		1919–20	452
1907–8	131	1920–21	391
1908–9	198	1921–22	629
1909–10	352	1922–23	588
1910–11	393		
1911–12	487	1923–24	834
1912–13	534	1924–25	1,003
		1925–26	1,074
1913–14	485	1926–27	1,011
1914–15	436	1927–28	1,076

[1] Financial panic.
[2] War and Reserve Officers Training Corps.
[3] Dependable data for this year not available.

The rapid trend upward in forestry enrollment in recent years has become a matter of concern to leaders in forestry education. It is thought that it may lead to an oversupply in this professional group. A national inquiry on forestry education, under the leadership of Dean H. S. Graves of the school of forestry of Yale University, is under way which will give more light on this question.

The high degree of specialization in agricultural curricula combined with a gradual decrease in the number of students enrolled in agriculture from 1920–21 to 1927–28 has had one result that has been the cause of much worry to teachers and administrators, namely, a gradual decrease in the size of classes. Of 6,641 classes in 42 institutions in 1927–28, 3,320, or 50 per cent, had fewer than 10 students,

and 964, or 14.5 per cent, had between 10 and 14 students per class, a total of 64.5 per cent of all classes in 4-year curricula in undergraduate agriculture with fewer than 15 students per class. This condition was not peculiar to any one group of institutions or to institutions with comparatively small enrollments. One of the larger institutions, for instance, with an undergraduate agricultural enrollment in 4-year curricula of between 450 and 500 students had 304 classes of which 167, or about 55 per cent, had an enrollment of fewer than 10 students per class. Another institution with a total enrollment of 350 to 400 had 200 classes of which 114, or approximately 57 per cent, had an enrollment of fewer than 10 per class. On the other hand, in the 42 institutions reporting there were 502 classes with more than 50 students and 142 with more than 100 so that while classes were small in many instances, there also are examples of very large class groups. Table 13 shows the number and size of classes in 4-year curricula in agriculture in 42 land-grant colleges and universities in 1928.

TABLE 13.—*Number and size of classes in 4-year curricula in agriculture in 42 land-grant colleges and universities in 1927–28*

Number of students in classes	Number of classes	Per cent of total	Number of students in classes	Number of classes	Per cent of total
Fewer than 10	3,320	50.0	60 to 69	80	1.2
10 to 14	964	14.5	70 to 79	70	1.0
15 to 19	597	8.9	80 to 89	46	.7
20 to 24	464	7.1	90 to 99	46	.7
25 to 29	311	4.6	100 to 199	111	2.0
30 to 34	218	3.2	200 or more	31	.4
35 to 39	130	1.9			
40 to 49	135	2.0	Total	6,641	100.0
50 to 59	118	1.8			

Small classes often are advantageous because of the close personal relations of students and teachers and because of the opportunity given every member in the class to express himself and to discuss the subject in hand. Such classes adapt themselves to the conference method of teaching where student and faculty member meet on common ground and the latter serves as the informed leader of discussion rather than as a platform lecturer. On the other hand, in many instances the classes have been too small to provide the interest and spirit that come from numbers and the opportunity for friendly rivalry and emulation. Moreover, the cost of instruction per student mounts as the size of the class decreases. Salary costs remain the same whether the class numbers 5 or 25. The same amount of classroom space and the same equipment often is used for a class with a few students as for one, two, or three times as many. The cost feature, therefore, must be considered.

No institution of established reputation willingly lowers its standards by refusing to give certain work that is required in a curriculum or major grouping in order that the teaching staff may be reduced. Nor is it an easy matter for a department head, dean, or president of an institution to say to someone who has been on the teaching staff for many years and who has rendered splendid service that his services are no longer needed. For many institutions it has been fortunate that during the period of decreasing enrollment of agricultural students, funds for research and experimental work have been increasing so that as student numbers have decreased it has been possible to devote more time to research and to retain the staff practically intact. Institutions have done their utmost to keep a competent staff so that work of as high a grade as possible might be given in the classroom and conducted in the research field. In the meanwhile a change in the tide of enrollments has been looked for which again would increase the size of classes and reduce the cost per student. While this has been delayed beyond the anticipation of many, enrollments in agriculture again are on the increase and an increase in the number of students in the various classes is to be expected. Institutions need to be on their guard, however, against overspecialization in undergraduate instruction if the economies to be expected from increased enrollment are to be realized.

Where small classes are inevitable because of limited enrollment and considerable specialization is demanded because of the specialized agricultural industries of the State, certain methods may be used which will help appreciably in avoiding excessive costs of instruction. One of these is to offer certain work in alternative years, making the curriculum sufficiently elastic to permit students who desire such courses to take them, or to excuse certain students from certain courses heretofore required for graduation. This can often be done without lowering the standard of work or measurably reducing the opportunity for any considerable number of students.

Small classes also may be handled frequently through the conference or project study method or a combination of both. Instead of meeting such classes three times a week it is sometimes possible to assign specific work or subject matter to be covered in library study and in the laboratory and to meet such students for help and advice once a week. The same or even better results may thus be obtained without reduction of credit allowed and with less strain upon instructors. Then again it is sometimes possible for one teacher to conduct two small laboratory classes simultaneously. This requires a certain degree of ingenuity and willingness on the part of the teacher to adapt himself to this method of teaching in order both to serve the students and reduce the costs per hour of student instruction. Further studies of overemphasis upon laboratory periods and

experimental trials of more economical means of instruction promise fruitful results.

The matter of large classes also deserves further study. Carefully controlled experiments in teaching certain specific subjects tend to show that large classes are not, in some instances, undesirable. These experiments do not demonstrate that all subjects can be taught equally as well in large as in small groups; they do indicate the probability that for certain subjects on specific levels, the large class is no handicap. Only experimental trial and measurement will provide adequate guidance in determining when small classes are wasteful of money and time. The importance of this matter is so great, however, that the land-grant institutions are urged to carry on careful investigation of the subject in cooperation with each other.

Certain requirements for the bachelor's degree.—Only a comparatively small per cent of agricultural students, except those who may have come to the institution with advanced standing, receive their degrees in less than four years. In only 16 of 38 institutions are such graduates found, the number varying from a fraction of 1 per cent in several to 5 per cent at the University of Wisconsin and the North Dakota Agricultural College, to 6.7 per cent at the Georgia State College of Agriculture, 6.8 per cent at Cornell University, and 10 per cent at the University of Arkansas.

Chapter VII.—Judging Contests

The use of judging contests of various kinds to stimulate interest and keen rivalry within and between institutions has been of long standing in undergraduate agricultural instruction. They have had a particularly prominent place in the animal husbandry and dairy husbandry classes, and contests in judging poultry, grain, apples, and other farm products are not uncommon.

Contests usually are staged after considerable class work in judging has been given. In order that students in classes from which contestants are picked may have the opportunity to see the best stock, poultry, fruit, grain, or vegetables that can be provided, not only is much emphasis placed on having the best possible equipment of this kind at the institution, but trips are made by students and teachers to the better farms in the surrounding communities to see and study the best that they afford. These may be followed by visits to county, State, regional, and national fairs and shows, where the best the country can provide is on view. Here this material is studied, and the climax is reached in intercollegiate judging contests.

All of this is stimulating to students, and there are many in practical agriculture to-day who maintain that they got more from these trips and contests than from their class work or any other student activity. On the other hand, they probably overlook that the trips and contests were the culmination of study and practice and would have meant far less to them had they not had the background of college training and experience.

A number of problems arise in connection with these trips which, to a considerable extent, are still unsolved. First is the matter of class absence and absences from all campus activities during these periods. How often, for instance, can a student stay away from lectures and laboratory in organic chemistry and be able to make up this work to the satisfaction of himself and his teachers? How many class discussions in agricultural economics, in marketing, or in education can a student miss and still get out of the course the same value that it affords those who are present every day? How shall the expenses of these trips, which often are considerable, be handled? Shall the student pay for them, since he is the principal beneficiary; or, because the institution has supervision over and promotes these trips, shall the institution carry the expense? These and similar problems the institutions are trying to solve.

One of the first steps usually taken in that direction is a requirement that all absence from the campus whether on judging trips or contests be approved by certain college authorities, from the head of the department in which the student may take his major work to the dean of the college of agriculture, the dean of men, or even the president of the institution. In one or two institutions the same penalty is imposed for absence from the campus for trips of this character as for absence for personal reasons. In most institutions, however, when permission has been received for such trips, no penalty is incurred, but a student is supposed to make up the work immediately after his return to the campus. The next provision usually is a limitation of the number of days' absence from the institution permitted for the purpose of visits to farms and judging contests. This is practiced in 15 institutions, while in 27 there is no such limitation. In the 15 the absences may vary from 3 days in one institution to 15 days in another and from a loss of 12 per cent of time that should be devoted to class work in 1 institution to 33⅓ per cent of the time in 2 and even 50 per cent in 1. While penalties, such as loss of credits because of absence for this type of work, would seem to be entirely too severe in one direction, permitting absence amounting to 50 per cent of the student's class time is entirely too liberal in the other. On the other hand, when the absences incurred because of judging trips to farms, livestock shows, and other exhibitions are compared with absences of members of athletic teams, the balance is likely to be entirely in favor of the former, both in the amount of time used and in the educational values. This should be taken into consideration when institutional regulations with reference to judging work and contests are considered.

The matter of judging contests has seemed so important that the Association of Land-Grant Colleges and Universities has had a committee at work on this problem for two years. In its second report made at the meeting of the association in November, 1929, the following recommendations were included:

"(*a*) That no member of a contesting team shall be permitted to accumulate more than 18 credit hours class absence due to training for a contest.

"(*b*) That during the contest no member of the team shall incur more than six days' absence from college plus time required for uninterrupted travel to and from each intercollegiate contest. (Teams that can not return home between contests may apply unused credit hours for training specified under the preceding paragraph.)

"(*c*) Additional study in respect to methods and standards of judging and instruction of different commodities is important.

"(*d*) No student having an average scholastic grade below that of the average for the college or who is on probation or under discipline that will be eligible to compete in any intercollegiate judging contests.

"(*e*) Students participating in intercollegiate judging contests shall be enrolled for at least a minimum full schedule as required by the institution."

While students in classes in which judging work is given may go with the class on the trips to surrounding farms and to fairs, participation in the contests is limited to students enrolled in special work leading to them in 32

institutions but is not so limited in 12. In only 10 of the 32 is the amount of preparation for these contests limited to that demanded for regular credit in the course. In the others more time is spent in training for these contests than the credits in the course would require.

The expenses of the trips in connection with these contests are paid in full by the students themselves in 21 institutions and by the students and institutions combined in 17. The expenses of the coaches of the teams are paid universally by the institutions. At Colorado Agricultural College, $400 is appropriated by the State board of agriculture for the senior stock judging team. At Purdue University the board of trustees at times sets aside a small item to handle the expenses of judging teams. At the University of Kentucky a definite sum is budgeted each year for this purpose, any additional amount necessary being furnished by the students. At Cornell University the transportation is cared for occasionally by the institution. At the University of California, Iowa State College, the University of Missouri, and some other institutions, departmental or voluntary student organizations help to defray the expenses of judging teams. Student activity fees are used to handle part of the expenses of judging teams at the University of Florida, Kansas State Agricultural College, and Massachusetts Agricultural College. At the Ohio State University the winnings of college livestock exhibited at the State fair are used toward these expenses. At the University of Minnesota an institutional prize fund is called upon in part and business men in other organizations contribute toward the expenses. Regional shows such as the Pacific International contribute a part of the expenses of students taking part in judging contests. From the assistance given by institutions and numerous other methods used to help defray the expenses of judging teams, it is clear that members of these teams are recognized as representatives in activities that are worth while from the institutional standpoint whether this be one of prestige or educational concern.

Trips for Practice Teaching

Trips other than those by students in judging classes and contests also create a problem in a number of institutions. Included in these are absences from classes due to practice teaching by students enrolled in classes for agricultural teaching. Specialists in education have long realized that such practice is an aid to good teaching. Supervised practice for those who are planning to teach agriculture in Smith-Hughes schools, therefore, has become a requirement. Such practice often may be obtained through arrangement with the local high school and with secondary schools in the neighborhood. Often, however, the necessary practice can be obtained only by taking trips to communities at some distance. These trips, in 22 institutions, create a problem of absence from other classes just as in the case of students who are studying, judging, and taking part in judging contests, while in 22 institutions there does not seem to be a problem of this character. In only 10 institutions has a special organization of the curriculum been arranged to take care of the difficulties incident to class absences. In most of the institutions the arrangements made are informal between the different members of the teaching staff.

Chapter VIII.—Conclusions and Recommendations

(1) Preparing students for general farming is no longer a primary function of the resident undergraduate work of colleges of agriculture in the land-grant institutions. Social, economic, and educational advances require that this fact be recognized frankly by the institutions and by their constituencies.

(2) The objectives of higher education in agriculture are increasingly and properly those of preparing: First, research workers in the scientific and social fields related to agricultural production and distribution and to rural life; second, extension workers for service in the dissemination of knowledge concerning the applications of scientific and economic truth to the problems of rural living; third, workers in all types of business and commercial activities related to agricultural production, distribution, and service; fourth, teachers of vocational agriculture and science in the public high schools; fifth, public servants in the investigating and regulatory departments of the State and National Governments; and sixth, overseers and managers of specialized and large-scale farm enterprises.

(3) The basic problem of organization of agricultural work in the land-grant institutions is one of devising methods for intergrating and coordinating resident teaching, experiment-station research, and extension activities. Tendencies in a number of institutions to develop research and extension in relative isolation from resident teaching require administrative attention.

(4) Minute specialization of departmental organization, with excessive departmental autonomy, tends, in certain institutions, to duplication of work, expensive instruction, and offerings inappropriate to undergraduate work, especially during the first two years of the college course.

(5) In view of the necessity for specialization in serving the diversified needs of modern agricultural research, extension, teaching, and business, and in view of the widespread development of public junior colleges, it is advisable that the land-grant institutions give consideration to reorganization of the agricultural division into junior and senior divisions, with specialization delayed until the end of the second year. Such reorganization is in harmony with current tendencies in higher education and not incompatible with

any of the objectives of college education in agriculture except the vocational one of preparation for general farming.

(6) The standard for training for agricultural staff members is being raised in harmony with the development of instruction that emphasizes scientific and economic objectives. Continued emphasis upon attainment of advanced degrees by the staff and upon study of subjects in education applicable to the problems of college teaching is desirable.

(7) The salaries of agricultural staff members serving for 11 months each year are not commensurate with those who serve 9 months. An adjustment of the salary scales upon the 9 and the 11 months' basis is urgently recommended.

(8) The number of students who enroll in agriculture varies with the condition of agricultural industry. This is true, although emphasis upon the training of research and extension workers, high-school teachers of agriculture and science, for State and Federal employment, and for business more or less closely related to agriculture tend to make this variation less acute than when the objective is primarily a back-to-the-farm one.

(9) Agricultural courses and curricula, and, to a considerable extent, departmental development reflect a decided tendency to increased economic and social emphasis upon the part of the agricultural colleges. This trend has not resulted in weakening of interest in the physical sciences.

(10) Experimental scientific investigations of certain educational problems extending over a period of years and conducted cooperatively and simultaneously by a number of agricultural divisions is recommended. Studies of this kind should be carried on in close cooperation with institutional schools of education or under the direction of educational technicians employed for the purpose. The following fields are suggested: (*a*) The different effects upon subsequent student work of teaching certain sciences in the college of agriculture and in the other basic science divisions; (*b*) method of coordinating the content of specialized courses in agriculture offered during the first two years of college; (*c*) the effects of farm practice requirements upon educational progress and practical success; (*d*) methods of providing practice work for prospective extension workers; (*e*) the validity of prerequisites now prescribed with reference to success in subsequent work; for example, general science prerequisites for applied work in agriculture; (*f*) the effects of different combinations and sequences of subjects upon students of equal ability; (*g*) methods of determining the degree and effects of the previous training of entering students (Smith-Hughes students especially) with reference to ability to carry on specific college sub-

jects in agriculture and means of adapting beginning instruction in college to such individual differences of preparation (not mental ability) as are found; (*h*) the effects of different laboratory methods and means of determining the most effective length of the laboratory period for each phase of a single course; (*i*) effects of class size upon student learning in various subjects and during the different years of college work; (*j*) methods of instruction designed to increase individual student responsibility; and (*k*) requirements that may serve as substitutes for class attendance and their effect upon progress and learning of students in different subjects and at different levels.

PART X.—ENGINEERING

Chapter I.—Introduction

Engineering and Engineering Education

Engineering strives to provide better and easier ways of satisfying human needs. Since the passage of the Morrill Land-Grant Act in 1862 the achievements in engineering and in other branches of applied science have resulted in a greater advance in civilization than had taken place in many centuries before that period. The electric light, electric furnace, electric storage battery, electric welding, X ray, radio, steam turbine, internal-combustion engine, aluminum, acetylene, liquid air, submarine, automobile, airplane, cash register, adding machine, farm tractor, farm machinery, moving picture, phonograph, concrete construction, steel construction, household heating plant, electric street railway, electric locomotive, power elevator, and many other inventions have been perfected during this period which have contributed to human happiness and comfort.

Rapid growth during the same period in the number and in the enrollment of the engineering colleges of the United States parallels this expansion of man's control over the materials and forces of nature. The rapid growth of our industries, public utilities, and public works is dependent upon men who are trained as engineers. In 1862 the people of this country were concerned mainly with the production of raw materials, grains, cotton, lumber, and minerals; the few factories of that time were mainly concerned with the manufacture of the coarser articles of commerce, and their product was valued in 1869 at only $4,000,000,000. To-day the United States is the greatest manufacturing nation in the world, with about 200,000 manufacturing establishments which turn out annually a product valued at more than $60,000,000,000. The telephone industry, which dates only from 1876, has 20,000,000 telephones in this country, or about two-thirds of the total number in the world. The use of electricity since 1882 has grown until on December 31, 1929, twenty-three and one-half million customers contributed to the industry and two-thirds of the entire population lived in homes supplied with electricity. The automobile has 25,000,000 owners. Nearly one-

half of the families in this country use either manufactured or natural gas as fuel for cooking. The engineer is responsible in large part for these developments in American civilization.

The growing importance of the engineering profession is evidenced by the following statistics, which show that the membership in the four national engineering societies, which represent the branches of engineering most generally taught by land-grant colleges, has more than doubled since 1916 and is nearly ten times that of 1900:

TABLE 1.—*Membership in four national engineering societies, 1900, 1916, and 1928*

Name of society	Date founded	Membership in—		
		1900	1916	1928
American Society of Civil Engineers	1852	2, 227	7, 909	13, 577
American Society of Mechanical Engineers	1880	1, 951	6, 931	18, 700
American Institute of Electrical Engineers	1884	1, 273	8, 212	17, 600
American Institute of Mining and Metallurgical Engineers	1871	2, 661	5, 781	8, 528
Total		8, 112	28, 833	58, 405

The market for engineering training is no longer confined to the strictly technical occupations. Executive and administrative posts in complex modern industries and public utilities are being filled increasingly by those who have demonstrated a thorough grasp of the business and social implications of technical processes.

History of engineering education as affected by the land-grant acts.—The land-grant act of 1862 did not originate engineering education in the United States. The United States Military Academy at West Point, organized during 1812–1817, was the first American school of applied science. Until 1827 only 57 of the 500 graduates from West Point were civil engineers. Engineering education, other than military engineering, was started in the United States at the Rensselaer Polytechnic Institute in 1824, with a curriculum that was greatly influenced by the practice of French engineering colleges. In 1840 the first class of civil engineers was graduated from the Rensselaer Polytechnic Institute. During the period from 1824 to 1862 the advent of the railroad created a specific and enlarged need for civil engineers and brought into prominence the need for mechanical and other types of engineers to increase industrial productivity. By 1862 four privately endowed colleges (Harvard, 1847; Dartmouth, 1851; Yale, 1852; Brown, 1854) and the University of Michigan (1852) were added to the institutions giving engineering instruction.

The Morrill Land-Grant Act of 1862 stimulated the rapid extension of engineering education, but did little to determine its distinctive form and character. The development of land-grant institutions made this type of education widely accessible to the industrial

classes, and many of the most notable engineering colleges of the United States were established directly or indirectly as a result of the Morrill Act. From 1862 to 1872 the number of engineering schools in the United States increased from 6 to 70; by 1880 the number was 85, and by 1928 about 150. Only approximately one-third of these engineering colleges are in land-grant colleges receiving Federal aid under the Morrill Act, yet in 1927–28, out of a total engineering enrollment of 65,520 in 148 engineering colleges, the 48 land-grant colleges had an enrollment of 29,528 engineering students. This means that the land-grant institutions are training at present nearly one-half of the engineers of this country.

Previous surveys of engineering education.—Engineering education has had the benefit of more extended and careful study and investigation than almost any other phase of the land-grant-college program. These studies are important for this survey primarily for two reasons: First, the field of the present survey may very properly be limited in large part to the areas not adequately covered by preceding studies; secondly, a summary of the more important results and conclusions of preceding investigations of this kind will form a background upon which to present the specific problems of land-grant-college engineering education in clear perspective with reference to the development of engineering education in general.

The two outstanding surveys of engineering education are the Carnegie Foundation Study of Engineering Education (1914–1917) and the study of engineering education by the Society for the Promotion of Engineering Education (1924–1929).

The first of these investigations was limited to the study of 20 typical engineering colleges, including 8 land-grant institutions. The report, prepared by C. R. Mann, was published by the Carnegie Foundation in 1918.

More than 100 engineering colleges, including all of those that are a part of land-grant institutions, participated in the second study. Engineering societies, several important industries, the National Industrial Conference Board, and the Office of Education of the United States Department of the Interior cooperated with the Society for the Promotion of Engineering Education. In this survey voluntary study by individual engineering colleges was directed and coordinated by a central board and staff of the Society for the Promotion of Engineering Education. The results of this study were published in the Journal of Engineering Education from 1925 to 1929 and have been summarized in 16 special bulletins and 4 reports published by the Society for the Promotion of Engineering Education. Complete detailed reports are now in press.

The main recommendations of these reports follow:

(1) *Engineering curricula.*—Neither report advocates any radical changes in engineering curricula or any modification in the normal length of the undergraduate period. Curricula longer than four years for all students have not received the backing of the engineering profession or of industry.

Both investigations report that American engineering curricula are too congested and recommend a reduction in annual credit hours to 18 as a maximum; both also advocate that a student should carry no more than six subjects at any one time.

Both surveys advise only moderate differentiation in undergraduate curricula. A common core of studies during the earlier part of the curriculum is essential to discover the abilities of individual students. A common freshman year is recommended for all engineeering curricula, with major differentiation to be postponed until the third year. The Society for the Promotion of Engineering Education survey recommends that in certain institutions provision should be made for options which recognize the technical and functional subdivisions of engineering curricula. The findings indicated that engineering curricula have unity of structure as well as necessary interdependence of subjects; also, that the subjects follow each other in logical order and that the student is led from broad principles first to the general and then to specific applications.

Both reports stress the importance of the human and economic aspects of engineering. The Carnegie report favors special curricula in industrial or administrative engineering. The Society for the Promotion of Engineering Education survey recommends that the economic and managerial aspects be included in all engineering curricula, but advises that instruction in business and management should not interfere with the scientific and technical character of the curricula. Extended business training does not belong to the engineering curriculum, but can be obtained after graduation as the need arises. A distinct curriculum in business engineering is not needed.

The Carnegie report advocates the teaching of theory and practice simultaneously, stresses the value of engineering laboratory practice, and favors an extension of the cooperative system of engineering education.

The Society for the Promotion of Engineering Education study has revealed that the engineering curricula are not specialized and that the student devotes about half of this time to studies that are acceptable toward a degree in practically any college of arts and sciences. Science, technology, and humanities constitute the basic parts of American engineering curricula. The present trends are to introduce more specifically engineering subjects during the earlier

part of the curriculum and to place greater emphasis on general rather than the technical subjects. It is recommended that a band of nontechnical electives, equivalent to about three semester hours per week, extend through all of the engineering curricula.

The Society for the Promotion of Engineering Education investigation includes a study of the cooperative method of engineering education. This type of instruction, which combines practical experience with scholastic training, is offered by 18 institutions, including 1 land-grant college. About 10 per cent of the total enrollment of engineering students in this country is in these cooperative courses. All but 2 of the institutions offering this type of instruction are located in cities of more than 100,000 population, and only 1 is in a strictly rural community. An analysis of graduates from 2 institutions which are alike in environment, number of students enrolled, size and general quality of staff, and in quantitative scholastic requirements for graduation indicates that there is no marked difference between the actual results secured by the institution offering cooperative curricula and the one confining its work to all-resident curricula. The type of positions occupied by both older and recent graduates exhibit a striking similarity. The two systems, when conducted equally well, produce equally meritorious results. The report states that the greatest fault in the operation of the cooperative plan is that it may be used as a disguise for insufficient facilities, for an inadequate and overworked teaching staff, and for low educational standards. Further, constant emphasis on practical knowledge may lessen the student's respect for abstract thinking and may be detrimental to development of scholarly attitudes.

(2) *The engineering teacher.*—Both reports emphasize the importance of good teaching. The Carnegie report criticizes the autonomy of the departments of our colleges and advocates that the departmental organization should find out by experiment the time needed to cover the subject matter. This report also urges that greater attention be given to the training of the engineer as a professional teacher and to closer cooperation between the engineering staffs and departments of education. The report also criticizes the present method of teaching mathematics and sciences to engineering students and advocates the selection of teachers with engineering background for this type of instruction.

The Society for the Promotion of Engineering Education study finds that, while inbreeding is not general, the present scheme of developing engineering teachers is inadequate. Appointment of engineers from practice is recommended only in special cases and the enlistment of engineering graduates for a teaching career is advocated near their entry into active life. Summer schools for engineering teachers, one of the results of this study, will be described in

another part of this report. Attention is called to the fact that while earning from outside engineering practice is encouraged in nearly all institutions, the salaries of engineering teachers, even when supplemented by outside earnings, are decidedly less than the incomes of the most nearly comparable class of engineering graduates in practice.

(3) *The engineering student.*—The Carnegie report advocates in connection with the admission procedure of engineering students experiments with objective tests and greater attention to records which show youthful interests and achievements.

The findings of the Society for the Promotion of Engineering Education Survey concerning the engineering students indicate that (*a*) the majority of entering students seem to choose engineering without adequate understanding of the work of the engineer and with little adult advice; (*b*) nearly one-fifth of all students admitted are conditioned and one-seventh are conditioned in mathematics; (*c*) less than 30 per cent of the students admitted are graduated in four years, and less than 40 per cent are ever graduated; (*d*) sectioning of basic freshman and sophomore subjects according to ability and preparation is advised; and (*e*) institutions which can not require a high selective system of admission should consider the division of their program into two stages, the first stage to be used as an introductory and try-out period for the advanced studies of the junior and senior years.

(4) *Engineering graduates.*—The Society for the Promotion of Engineering Education studies reveal the following information concerning engineering graduates: The demand for engineering graduates exceeds the supply. The majority of the engineering graduates remain in the same line of work as their college courses or in closely associated branches of engineering.

The engineering graduate advances steadily through positions preponderantly technical in nature to those involving executive and administrative responsibilities.

Conditions for the engineering graduate can be improved by more careful guidance on the part of the colleges in connection with his first position after graduation and assistance in an educational program after leaving college. Twelve per cent of engineering graduates (more than 1,000) pursue graduate study and about 7 per cent receive advanced degrees.

(5) *Supplementary activities of engineering colleges.*—Sixty engineering colleges are carrying on organized engineering research and testing. During the year 1923–24 about one and one-third million dollars was expended for these purposes. Twenty-nine colleges report expenditures of this kind of $5,000 or more per year. The

greater part of engineering research is carried on by 10 institutions and about two-thirds of the engineering colleges maintain no organized research activities.

Only six institutions offer evening classes in engineering which lead to degrees. Twenty-one institutions offer evening instruction which does not lead to degrees. Thirty-one institutions offered in 1924–25 short term and special courses in residence. Sixteen institutions offer correspondence instruction. Twenty engineering colleges maintain radio broadcasting stations.

(6) *Engineering education in Europe.*—Dr. W. E. Wickenden, director of investigations for the Society for the Promotion of Engineering Education, made a very exhaustive study of engineering education in Europe. The main conclusions of the study follow:

A comparison of American engineering colleges with those of the most progressive countries of Europe indicates that engineering education in this country is effective and meets the need of the American student better than the type of engineering college found abroad.

Technical education in the United States, however, suffers by comparison with that of other countries on account of its inflexibility. The most progressive countries of Europe have several well-defined levels of technical education. At the top are the technical universities which are comparable to the best of our engineering colleges. At the middle of the scale are institutions designed to train for the junior technical and supervisory positions of industry. At the bottom of the scale are apprentice schools for skilled workers. The most immediate need for large numbers of young people in the United States is a briefer, more practical, and more intensive training than that of an engineering college, a training broader than a trade school and quite distinct from the academic junior college.

(7) *Survey of engineering education by industry.*—In addition to the above two surveys by the Carnegie Foundation and by the Society for the Promotion of Engineering Education, the National Industrial Conference Board carried on during 1923–1927 a number of studies pertaining to engineering education and American industry. The field for engineering graduates was investigated in 1923 for the paper and pulp, rubber textile, and metal trades industries. Of the executives in these industries engineering colleges have supplied 10 per cent in the textile field, one-half in the rubber industry, 60 per cent in the paper and pulp business, and more than 70 per cent in the metal trades.

Chapter II.—Position of Engineering in Land-Grant Institutions

The preceding summary of the important findings of earlier surveys affords a point of departure for this report upon engineering in the land-grant institutions. This report is concerned with data and conclusions which have been obtained through questionnaires sent to the land-grant institutions by the Office of Education of the United States Department of the Interior, through special visits and by means of the study of published information.

An effort will be made to evaluate the place of engineering education in the land-grant institutions and to find whether it has any distinctive place among the engineering colleges of this country.

The land-grant institutions rest upon the foundation of State and national support. Accordingly, considerable attention will be devoted to facts which bear upon the distinctive services which these colleges are rendering to the public, with particular reference to contributions which relate to social betterment and economy; also information will be given concerning the status of engineering research and engineering extension at these institutions.

Before discussing the facts concerning engineering education secured in connection with the land-grant college survey it will be well to record the interpretations of the land-grant act as applied to engineering, to analyze the attitude toward engineering education at land-grant colleges, and to appraise the objectives of engineering education at these institutions. These topics will be followed by a discussion of the findings from the questionnaires on engineering education at land-grant institutions with special reference to entrance requirements, special problems of the undergraduate student and the engineering graduate, undergraduate engineering curricula, trends in graduate study, the status of cooperative engineering instruction, nondegree curricula in trades and industries, noncredit curricula in trades and industries, noncredit technological courses, industrial education other than engineering, agricultural engineering, engineering research, expenditures for engineering education, status of physical plant and educational equipment, aid to engineering education from industry, staff problems, and trends in internal organization.

Engineering Education and the Land-Grant Act

The term "Mechanic arts" as used when the land-grant act was being considered by Congress was commonly employed synonymously with the terms "useful arts" and "industrial arts." The dictionaries commonly in use at the time make it evident that Senator Morrill was justified in using the term mechanic arts in preference to engineering. Thus, Webster's dictionary of 1855 states that an engineer is one who constructs or manages engines or cannons. The Webster's dictionary of 1860 under engineer refers to: (1) Military engineers; (2) maker of engines; (3) one who manages a steam engine; (4) a civil engineer as one who constructs canals, docks, railroads, etc. Webster's dictionary of 1862, under art, states that the moderns divide the arts into the fine arts and the useful or mechanical arts; those arts in which the hands are more concerned than the mind are called "trades." Apparently Senator Morrill did not use the word "trades" as his act was intended to stress the mental rather than the manual. The Worcester's dictionary of 1855, 1860, and 1866, under "art," refers to the fine arts and useful or mechanic arts. The Encyclopedia Britannica, dated 1857, states that mechanics, applicable or applied, is a term which, strictly speaking, includes all applications of the principles of abstract mechanics to human art. The title of the Franklin Institute Journal (Philadelphia) for 1857 was "Journal of the Franklin Institute of the State of Pennsylvania for the Promotion of the Mechanic Arts, Devoted to Mechanical and Physical Science, Civil Engineering, the Arts of Manufacture and the Recording of American and Other Patent Inventions."

Senator Morrill in his letter to E. W. Stanton, of Ames, Iowa, dated December 23, 1890, makes the following statement: "Civil engineering in the agricultural colleges is perhaps *one of the most useful branches of the mechanic arts* that can be taught and, of course, it was included in the act of 1862."

The American Association of Agricultural Colleges and Experiment Stations (the predecessor to the Association of Land-Grant Colleges and Universities) adopted at its convention held at Portland, Oreg., in 1909, the following resolution:

> That it is the sense of this association that the national laws which constitute the charter of the land-grant colleges distinctly prescribe work of collegiate grade in agriculture and mechanic arts, including engineering in all its branches and the science related to industries, irrespective of whether the colleges are established separately or as parts of universities.

The Secretary of the Interior Department has ruled officially (Federal Laws, Regulations, and Rulings Affecting the Land-Grant Colleges of Agriculture and Mechanic Arts, 1911) that the following

subjects may be included under the head of mechanic arts in the reports of the treasurers of the land-grant colleges: Mechanical engineering, civil engineering, electrical engineering, mining engineering, marine engineering, railway engineering, architecture, textile industry, ceramics, irrigation engineering, and experimental engineering.

The executive committee of the Association of Land-Grant Colleges on November 13, 1914, reported the following definitions for mechanic arts and engineering:

> Mechanic arts is a broad educational term, which includes engineering education as its higher or professional phase, trade-school and short-course instruction as its collateral and extension phase, and experimental and other technical investigation as its research phase.

Soon after the passage of the Morrill Act in 1862, plans were laid for instruction in engineering, under the provisions of this law, at the Massachusetts Institute of Technology and at Cornell University, two of the most famous colleges of engineering. Purdue University, a land-grant institution, has had a reputation mainly as an engineering college since its establishment in 1872. Iowa State College, the University of Illinois, the University of Wisconsin, and the Ohio State University, have all stressed engineering as one of their major fields.

The foregoing evidence indicates that the definitions of Morrill's time and accepted interpretations of the land-grant act place engineering as a required part of the program of land-grant institutions and coordinate with agriculture. The degree of its development in any institution will be controlled naturally by the local needs of the State or region served by the individual land-grant college.

Attitude Toward Engineering at Land-Grant Colleges

The American Association of Agricultural Colleges and Experiment Stations from 1885 to 1919, and its successor, the Association of Land-Grant Colleges and Universities, from 1920 to 1928, for a considerable period gave major attention to the agricultural divisions of land-grant institutions. This was, no doubt, due mainly to the preoccupation of these institutions with the problems of rural people who constituted until recently a majority of our population. State legislative bodies, made up of those whose interests were primarily in agriculture, influenced the attitude of the governing bodies of land-grant institutions.

The proceedings of the Association of Land-Grant Colleges and Universities is of interest in this connection. From the organization meeting of this association in July, 1885, until the seventh convention

in 1893, no mention was made in the proceedings of engineering or mechanic arts. The addresses of the presidents of the association, who were generally land-grant college presidents, included matters pertaining to education, research, and special legislation related only to agriculture. In 1893 a section on mechanic arts was organized and during the period of its existence from 1893 to 1902, it had a very insignificant part in the meetings. Very few of the papers presented were published except by title; and very few institutions were represented at these meetings by engineering teachers or deans. In 1897 an engineering experiment station bill was proposed by the engineering delegates along the lines of the Hatch Agricultural Experiment Station legislation. The executive committee of the association refused to sponsor this bill or to urge its passage. After unsuccessful efforts to receive recognition this "mechanic arts section" was abandoned and the engineering educators had no part in the Association of Land-Grant Colleges until 1916 when the Land-Grant College Engineering Association, organized by the engineering deans of the land-grant institutions, was admitted to the main association as the engineering division of the section on college work. Since 1916 the engineering divisions of land-grant institutions have received greater attention on the programs and in the proceedings of the association. A section on engineering is definitely organized. However, as compared with agriculture, engineering still plays a minor rôle in the management of the association.

Agriculture and mechanic arts were equal in the Morrill Land-Grant Act, but one who is familiar with the internal policies of the land-grant institutions realizes that, except in very few cases, the engineering divisions have received insufficient support. The late Senator F. G. Newlands, of Nevada, at the Twenty-ninth Convention of the American Association of Agricultural Colleges and Experiment Stations held in Berkeley, Calif., in 1915, stated:

> Thus far the legislation regarding our land-grant colleges has been in its practical application more beneficial to agriculture than to the mechanic arts, though they were linked together in the original act.

The boards of control of only 23 land-grant institutions contain either engineers or industrialists. Of a total of 609 members of the land-grant college governing boards, only 49, or about 8 per cent, are engineers.

The attendance at land-grant institutions does not justify this seeming indifference to the interests of engineering as a part of the land-grant college system of education. Even as early as 1900 at the New Haven convention of the Land-Grant College Association, a report was made that the graduates from engineering and from agriculture at the leading land-grant colleges were in the ratio of

5 to 1. During the year 1927–28 the enrollment in engineering and in agriculture at land-grant institutions was in the ratio of 8 to 3. The support for agriculture is none too adequate considering the present status of this most important industry. Nevertheless, governing boards and administrators might in many instances give more attention to the engineering divisions which are responsible for such a large portion of the student enrollment of these institutions.

At the Thirty-ninth Annual Convention of the Association of Land-Grant Colleges in 1925, Dean E. A. Hitchcock, of the Ohio State University, gave the following data of interest with reference to support for engineering and agricultural research: By 1930 as a result of the Hatch, the Adams, and the Purnell Acts of the United States Congress, the land-grant colleges will receive annually from the Federal Government $4,410,000 for agricultural research. At 15 land-grant colleges, which are recognized for their contributions through engineering, teaching, and research, the same paper reports that the amount expended for agricultural research up to 1925 was $37,100,404, as compared with $2,205,115 for engineering research. This means that in these institutions the expenditures for engineering research have been only 5.6 per cent of the total appropriations for agricultural and engineering research. More liberal support for engineering research is needed in order to train creative leaders of industry.

Objectives of Engineering Education at Land-Grant Colleges

When the Morrill Land-Grant Act was passed there was little understanding of the scientific problems underlying industry. For many years after the passage of this act the industries were unprepared to use scientifically trained engineers. The entrance requirements were low in most of the land-grant colleges, and the facilities in staff and equipment were very meager. As a result, the earlier curricula of the land-grant colleges stressed shop practice, drawing, surveying, and similar subjects in order to relate instruction to the opportunities available immediately after graduation. Instruction was mainly vocational and practical training was stressed. These immediately practical objectives have survived under conditions and standards of education unknown to the earlier forms of engineering instruction in the land-grant colleges.

The staff and equipment have also been greatly improved. Entrance requirements have been raised, the number of special students reduced, and the time devoted to the humanities, to science, and to mathematics has been increased and the time given to descriptive and practical subjects reduced.

Yet practical objectives have not given way to academic ones. Placing scholarship as one but not the only aim of education has been accompanied in some cases by a sacrifice of educational standards; availability of opportunity and the efforts to adjust entrance requirements to conditions in each State have often resulted in admitting poorly prepared students; and interest in serving the public has necessitated in some institutions the introduction of special and short courses which are of noncollegiate and vocational character. Nevertheless, these distinctly American colleges are important factors in training large numbers of men for responsible tasks in industry. These colleges have retained ideals of truly democratic education. They are raising the general standards of the industrial classes by supplying leaders who are good citizens as well as efficient technicians.

Chapter III.—Student Problems

Present practice.—The requirements for admission to engineering are uniform in the number and in the kind of high-school units[1] demanded. The average requirement of land-grant engineering colleges increased from 11 high-school units in 1900 (23 institutions reporting), to 14 in 1910 (41 institutions reporting), and to 15 in 1920 (49 institutions reporting).

Prescribed units.—The prescribed units vary from 5 to 13, but 8 units are most generally specified. All of the institutions prescribe the minimum units in mathematics, English, physical or biological science, and social science. The general requirements are 3 units of mathematics, 3 units of English, 1 of physical or biological science, and 1 of social science. Only in 10 cases is foreign language a prescribed subject. However, records of admission indicate that in nearly all cases students offer ancient or modern foreign languages. Industrial arts and commercial subjects are often offered, but only in exceptional cases are more than three units accepted in these subjects. In the selection of the prescribed science units, preference is given to physics and chemistry. Preference for languages are stated as German, French, Latin, and Spanish, in the order given.

Method of admission.—The land-grant institutions, recognizing that they are an integral part of the public-school systems of their States, admit to the freshman class on credentials from accredited high schools. An exception of this rule is the Massachusetts Institute of Technology, which admits only by examination.

Sixteen institutions give either entrance or advanced credit for industrial experience. The amount granted is usually four entrance units or less, and an examination is usually required. Thirteen engineering colleges grant credit for education gained through informal means, but the student must establish such credit by examination.

Intelligence and objective tests.—No institutions require for admission intelligence or special objective tests, although 17 of the colleges are giving selective tests during the early part of the freshman year. Eight are experimenting with psychological tests.

Admission with conditions.—Nearly all engineering colleges admit students with conditions. Nine institutions report that 24.2 per cent of all students admitted in 1927 and 21.8 per cent of those admitted in 1928 had conditions in mathematics. The problem of "conditional students" is the same at nearly all institutions. Many high-school students are unfamiliar with the fixed entrance requirements of colleges and in large numbers of cases seek admission to engineering colleges without adequate mathematical preparation. A large

[1] A high-school unit represents the study of any subject for a school year of at least 32 weeks, with 5 recitation periods per week, each of at least 45 minutes in length, or the equivalent thereof.

percentage of those admitted with conditions have deficiencies in solid geometry or in algebra. In some States, land-grant engineering colleges report that they are forced to accept students who have not had even plane geometry. The large numbers admitted with conditions have necessitated the setting up in many land-grant colleges of special classes in secondary school algebra and solid geometry.

Special Problems of the Undergraduate Student

The replies to questionnaires show the following trends:

Orientation of entering students.—Nineteen institutions have developed orientation courses, engineering problems for freshmen, and other special instruction to aid students in the early part of their engineering curriculum in obtaining a clearer conception of engineering as a career.

Sectioning of entering students.—Thirty-six land-grant colleges section students in basic subjects, such as mathematics and English. This method is helpful in basing instruction upon the student's preparation. In sectioning freshmen, use is made of the student's high-school record as well as of mathematics and English aptitude tests which are given to the entering students in a number of institutions. In 30 institutions students who are poorly prepared are assigned to noncredit courses in mathematics and in 24 colleges such students must pass a noncredit course in English before they are allowed to pursue the regular instruction in this subject.

Lengthening time for completion of curriculum.—Forty-one land-grant engineering colleges advise students who are poorly prepared, who are slow to learn, or who must earn a portion of their college expenses, to pursue a program which will take more than the regular four years to complete the requirements for a degree.

Compulsory stopping places.—Sixteen land-grant institutions favor a compulsory stopping place at the end of the second year for those who lack qualifications for the advanced instruction of the junior and senior years. However, no land-grant institution is enforcing selective admission to the third year. Engineering faculties are not in full accord on this point; furthermore, it is questioned whether a State-supported engineering college could enforce such a requirement.

Special treatment of advanced students.—Only in one institution are students in upper classes placed on their own resources and their instruction differentiated very sharply from that in the lower classes. In this institution successful experiments have been carried on with instruction by the lecture method to large sections of from 90 to 300 junior and senior students. In nearly all cases the methods of instruction during the junior and senior years are not essentially different from those in use for the first two years.

Special recognition of scholarship.—To an increasing extent students of outstanding scholarship are given special treatment. Thus, 8 institutions report special honor courses, 28 award prizes for high grades, 19 place students of superior ability in special sections, 18 allow such students to take extra courses, 16 allow the best students unlimited absences, 35 elect such students to honor societies, and in 1 case honor students are credited with $25 per semester toward their fees and tuition.

Demand for graduates and placement problems.—The demand for those about to graduate from engineering colleges has exceeded the supply. One land-grant engineering college reports that 210 industrial firms recruited employees among the senior engineering students of that institution during the year 1927–28. Eight institutions state that more than 100 distinct organizations actively recruited their senior students during the same year. The number of companies recruiting from different land-grant engineering colleges varies from 4 to 210. Thirty-five and seven-tenths per cent of all of those who graduated from land-grant engineering colleges in 1928 were recruited by such firms or organizations. An average of only 14 per cent of those who graduated in 1928 from all of the 49 institutions were not employed at the time of graduation. The number not placed in the better land-grant engineering colleges is negligible.

An average of 39 per cent of the graduates of land-grant engineering colleges find employment in the State in which the institution is located. This figure varies from only 2 per cent for a small college located in a distinctly agricultural community in a very thickly populated State to 85 per cent for an institution in a large industrial community.[2]

Special guidance of undergraduates.—Forty-six land-grant institutions give definite guidance to their seniors in the selection of the first position after graduation, and 38 engineering colleges encourage their most gifted students to pursue graduate study. In nearly all cases, however, a period of employment in practice is advised before graduate study is undertaken.

The land-grant engineering colleges realize the importance of proper guidance for undergraduates. Nine land-grant engineering colleges have developed personnel systems through which they are endeavoring to aid their students in developing traits of personality which the engineer must possess, such as good address, cooperative ability, and well-balanced initiative. Five of these and eight other engineering colleges are giving much attention to placement of engineering students.

[2] Occupations and salaries of graduates are presented in Part V of this report, "Alumni and former students."

Chapter IV.—Curricula

The curricula leading to degrees in engineering at land-grant institutions are representative of the general tendencies in engineering education of the United States. Of the 29,528 students enrolled in engineering for the academic year ending June, 1928, at the land-grant institutions, 19 per cent are studying civil, 29 per cent electrical, 17 per cent mechanical, 7 per cent chemical, 3 per cent mining and metallurgical, and the remainder are in other engineering curricula. Thus 65 per cent of all engineering students at land-grant institutions are enrolled in civil, electrical, and mechanical engineering.

Balance between general and technical instruction.—The program of studies is made up of science and mathematics, technology, humanities, and military training and physical education. In Table 2 average statistics (based on replies from the questionnaires) are given in percentages of the time devoted in the major curricula to these subjects. Under humanities are included languages, social and economic sciences, history, psychology, and government. Mechanics, hydraulics, thermodynamics, drawing, designing, shop practice, and the applications of these and of the physical sciences to engineering are given under technology.

TABLE 2.—*Time devoted to various subjects in the engineering curricula*

Curriculum	Number of institutions reporting	Per cent of time devoted to—			
		Humanities	Science and mathematics	Technology	Military training and physical education
1	2	3	4	5	6
Civil engineering	38	17	27	50	6
Mechanical engineering	35	14	27	53	6
Electrical engineering	36	15	27	53	6
Mining and metallurgy	10	14	34	46	6
Chemical engineering	25	14	40	40	6

The data in Table 2 check the conclusions reached by the Society for the Promotion of Engineering Education as a result of the survey of all of the engineering colleges of the United States; that is, that practically 1.8 academic years, or about 45 per cent of the total time in the engineering curricula, are given over to science, mathematics, and humanities, a type of general training which would be entirely acceptable toward a degree in any arts college. Engineering education can not be characterized as specialized or illiberal only in as far as devotion of one-half of the time to technology makes it so. Land-grant engineering colleges are not attempting to turn out a finished product, but to graduate students with capacity to become engineers.

Number of subjects carried at one time.—The number of subjects carried by students in the several engineering curricula, as given by reports from the institutions are summarized in Table 3.

TABLE 3.—*Number of subjects carried at one time*

Curriculum	Number of institutions reporting	Number of subjects carried			
		Freshmen	Sophomores	Juniors	Seniors
1	2	3	4	5	6
Civil engineering	39	7.0	6.5	6.8	6.8
Mechanical engineering	40	7.0	7.0	6.8	6.6
Electrical engineering	38	6.9	6.4	6.5	6.8
Chemical engineering	24	6.6	6.0	6.7	6.7
Mining and metallurgy	14	6.6	6.6	6.7	6.8

Table 3 indicates that the engineering student at the land-grant college carries at one time between six and seven different subjects. This practice was criticized by both the Carnegie and the Society for the Promotion of Engineering Education surveys. More experimental information is needed to demonstrate the number of subjects a student may carry at one time most advantageously. However, it appears probable that the engineering colleges will secure better results by reducing the number of subjects carried at one time to six or even to five.

Quantitative requirements for graduation.—The replies from institutions with reference to the semester hours required for graduation are summarized in Table 4.

TABLE 4.—*Trend in semester hours required for graduation*

Year	Semester hours required for graduation in different curricula					
	Architecture	Engineering				
		Chemical	Civil	Electrical	Mechanical	Mining and metallurgy
1	2	3	4	5	6	7
1890	128	----------	156	145	165	144
1900	144	145	150	158	161	138
1910	161	154	152	155	155	147
1920	149	153	152	152	152	152
1925	147	146	150	149	148	147
1928	149	145	146	146	146	146

Table 4 indicates that 145 to 150 semester hours are required at present for graduation. The trend in civil, electrical, and mechanical engineering seems to have been to reduce the requirements in semester hours. This is due mainly to the reduction in the time devoted to shop practice, surveying, and drawing. A requirement of 146 semester hours is not excessive for an engineering curriculum, and particularly in the case of land-grant institutions where an average of 6 semester hours out of the 146 is devoted to military training and physical education.

Of the semester hours required for graduation, an average of 84 semester hours, or 58 per cent, is common in the three curricula of civil, electrical, and mechanical engineering. The differentiation between these and chemical or mining engineering is greater, but the basic requirements in mathematics, science, and the humanities are practically the same in all engineering curricula.

Practical experience during summers.—Twelve land-grant engineering colleges expect their students to be employed in industry during the summer vacations. This is not a definite requirement for graduation since difficulty is encountered in finding employment which will give large numbers of students industrial experience. Furthermore, the homes of students are often located at great distances from industrial centers and the majority of students attending land-grant colleges must find profitable employment during the summer in order to continue their studies without interruption.

Inspection trips.—To give the undergraduate student some contact with industry, inspection trips are required by practically all land-grant institutions. Four institutions require inspection trips during the sophomore year, 15 during the junior, and 29 during the senior year. An average of five days is devoted to such trips during

the senior year and in all cases attendance is a requirement for graduation. Short informal inspection trips to local industries are arranged throughout the undergraduate years.

Survey camps.—Only eight institutions own camps for instruction and practice for civil engineering students in surveying. The distances of such camps from the colleges vary greatly; 12 to 60 miles is common, but in some cases the distance is in excess of 150 miles. The total acreage covered by these camps in the eight institutions is 4,135 and their value is estimated at $183,650. Instruction is given during the summer, usually between the second and third years. The average length of time for camp practice is six weeks.

Special noncredit technical subjects.—Seven land-grant engineering colleges offer in addition to the regular engineering subjects of the curricula, special courses in elementary mechanics, electricity, power plants, and machine design. These special courses require less mathematical preparation than the corresponding subjects in the standard curricula and can not be used for credit toward a degree in engineering but are designed for special students and for others who are not candidates for engineering degrees. Land-grant engineering colleges will do well to increase such offerings for the benefit of their engineering students who can not graduate on account of the lack of mathematical ability, but who will be more useful to industry if they leave college with some knowledge of elementary mechanics, drawing, electricity, power plants, and other technological subjects which can be taught to those who have had no calculus.

Commercial training.—Only two land-grant institutions offer distinct engineering curricula in which an effort is made to treat both engineering and commerce as major subjects. All institutions are requiring all engineering students to pursue certain courses in economics and a number have available either as required or as elective courses work in accounting, personnel administration, marketing, business law, money and banking, corporation finance, and business administration. To an increasing extent engineering colleges are also offering either as required or electives course work in industrial engineering and management. However, the great majority of land-grant engineering colleges do not favor the teaching of both commerce and engineering as majors in a 4-year undergraduate curriculum.

Cooperative plan of engineering instruction.—Only one land-grant engineering college is now offering engineering instruction on the cooperative plan. Two other institutions are planning to offer such instruction in the future. The cooperative plan, which is now in operation at one land-grant college and which is contemplated by another, is limited to only a small fraction of the total enrollment and leads certain selected students to the master's degree in five years. The students devote all of their time during the first one and three-

fourth years to resident studies. Beginning with the summer of the second year they alternate between industry and college, the length of the period of alternation being a semester or a summer term. The cooperative students spend their entire time in one plant and have also theoretical instruction during the practice periods. About 150 weeks are devoted to resident collegiate instruction and about 60 to practice in industry.

The locations of most land-grant colleges do not lend themselves to the cooperative plan. Furthermore, the results of the survey by the Society for the Promotion of Engineering Education indicate that equally satisfactory results may be accomplished by the all-residence plan.

Undergraduate degrees.—From 1873 to 1928, all the land-grant institutions conferred 47,677 bachelor's degrees in engineering. The number of engineering bachelor's degrees awarded varied as follows: From 1873 to 1886 fewer than 100 were awarded per year. The number rose to 131 in 1886, 294 in 1890, 594 in 1900, and 1,449 in 1909. Then there was little change in tendency until 1918, when the degrees awarded dropped to 940, fell to 879 in 1919, rose to 1,384 in 1920, to 1,828 in 1921, and to 2,467 in 1923. In 1924 the number awarded dropped to 2,132 and has remained nearly stationary since that time.

Nearly all land-grant colleges confer upon those who complete the undergraduate curriculum the degree of bachelor of science to which a specifying phrase may be added; for example, bachelor of science in mechanical engineering. In rare cases the bachelor of engineering is conferred and in one institution the professional degree of civil engineer, electrical engineer, and mechanical engineer is conferred as the first or bachelor's degree.

Trends in Graduate Study

For the period from 1873 to 1928, all the land-grant institutions report only 5,012 engineering master's degrees. For the same period all the land-grant engineering colleges report 47,677 bachelor's degrees in engineering. From 1873 to 1884 the number of engineering master's degrees conferred per year remained below 10; this rose to 14 in 1885, 27 in 1890, 42 in 1900, 97 in 1908, 213 in 1916, 148 in 1917, remained below 150 until 1921, varied from 200 to 300 from 1921 to 1927, and was 331 in 1928.

For the year ending June 30, 1928, all of the land-grant engineering colleges conferred 331 master's degrees in engineering, and during the same year 2,072 undergraduate engineering degrees were conferred. Thus the number of master's degrees conferred in 1928

is 16 per cent of the number of bachelor's degrees in that year, a ratio well above that found by the Society for the Promotion of Engineering Education study of all engineering schools. Of all the master's degrees conferred in 1928, the Massachusetts Institute of Technology is credited with 179, or 54 per cent. Seven doctorates in engineering were conferred in 1924, 9 in 1925, 10 in 1926, 14 in 1927, and 13 in 1928. Outside of the Massachusetts Institute of Technology very few doctorates in engineering have been conferred up to date.

The foregoing data indicate that the land-grant engineering colleges, as well as other engineering colleges, are mainly undergraduate institutions. The great demand for engineers with bachelor's degrees and the inadequate recognition on the part of industry of resident graduate study are the two main factors which are responsible for the small number of engineering students who are pursuing graduate study. Furthermore, the training of the engineer in most cases can not be completed at college. To an increasing extent the young engineering graduate finds that industry has set up special facilities for advanced study, research, and broad experience. In some cases industries have special arrangements with the higher educational institutions of their localities so that the engineering college graduate may pursue courses leading to the master's and doctor's degrees.

Another factor which has limited resident graduate study is the fact that only a very few of the land-grant engineering colleges have proper facilities for graduate study. In nearly all cases the staff members are fully occupied with undergraduate instruction and have inadequate special equipment for advanced courses. In many cases staff members are excellent teachers of undergraduate subjects, but have not extended their own study beyond their undergraduate years. It is true that many of these have had considerable experience, but are not sufficiently grounded in theory to be successful with graduate students.

Graduate instruction in engineering has received a new impetus in connection with the development of engineering experiment stations at land-grant colleges, but the number of students who will pursue resident postgraduate study will remain small until the industries, the utilities, and the public works of the Nation come to appreciate the value of more thorough engineering education that is provided in the undergraduate engineering curricula. However, the stronger land-grant institutions have a responsibility to develop graduate study in engineering in order to train teachers and to give their exceptional students a better scientific knowledge and a better preparation for research as a career.

Industrial Education

Sixteen land-grant institutions are offering curricula leading to degrees in industrial education for the purpose of preparing teachers in accordance with the Smith-Hughes Federal Vocational Education Act. In nine institutions this curriculum is administered by the dean of engineering and in seven it is under the dean of the school of education.

Land-grant institutions should take greater advantage of the Federal vocational education act and should train a larger number of the teachers for trades and industries of the country. The administration of this type of instruction depends upon local conditions, but ordinarily curricula in industrial education should be very closely allied to the training of engineers.

Status of Agricultural Engineers

Administration.—In 22 land-grant institutions the instruction in engineering as related to agriculture is administered as a separate department of the college of agriculture, in 6 this instruction is administered under the college of engineering, and in 12 institutions there is a joint administration by both agriculture and engineering.

Name given to instruction.—Twenty-nine institutions designate the instruction in engineering as related to agriculture by the name "agricultural engineering," 10 use the term "farm mechanics," and 3 use other designations such as "rural engineering."

Degrees in agricultural engineering.—Twenty institutions offer curricula leading to degrees in agricultural engineering. In nine of these, such curricula are administered under the dean of engineering, in four under the dean of agriculture, and in seven under the joint administration of both the deans of engineering and agriculture.

For the year ending June 30, 1927, only 36 degrees were awarded by six institutions.

If the agricultural engineering curriculum is an engineering curriculum its administration by the dean of engineering seems to be the only logical practice. To have such a curriculum administered by the dean of agriculture will no doubt result in two different standards for engineering degrees. Joint administrations may give satisfactory results, but dual responsibility for a curriculum may lead to complications.

Enrollment in agricultural engineering.—In Table 5 are given data for the enrollment in agricultural engineering for a number of years.

TABLE 5.—*Enrollment in agricultural engineering*

Year	Students—				
	Freshmen	Sophomores	Juniors	Seniors	Total
1	2	3	4	5	6
1916	99	52	20	24	195
1920	105	53	24	24	206
1925	84	65	45	59	253
1928	90	59	52	29	220

The data in Table 5 show that only about 225 students are enrolled in agricultural engineering in all of the land-grant colleges. The growth in enrollment in this branch of engineering during the past 10 years was almost negligible. It is true that the 20 land-grant colleges established this curriculum since 1925–26 and that it is therefore too soon to expect much expansion of enrollment. It is doubtful whether 20 land-grant colleges are justified in offering special curricula in this field, although instruction in engineering as related to agriculture should be given in all land-grant institutions.

Noncollegiate Instruction in Engineering

The present facilities in the United States for the noncollegiate type of technical instruction are extremely meager. This country has about 150 institutions which are offering curricula leading to degrees in engineering, but nondegree courses are seldom available for the training of artisans, foremen, and others to occupy the junior technical and supervisory positions of industry. With the passing of the apprenticeship system, facilities are also lacking to train workers for the trades.

Nondegree curricula.—Only four institutions are offering technical curricula of less than three years in length and not leading to degrees. While there is need for people trained in such curricula, the enrollment figures (Table 6) show that such curricula are not popular. The experience of several land-grant colleges leads them to conclude that it is usually undesirable for an engineering college to offer curricula not leading to degrees. In Great Britain both collegiate and noncollegiate technical instruction is being offered in the same institution in industrial centers. In the United States the student enrolled in curricula not leading to degrees has no social status among the other college students. Furthermore, the average American boy, if he is interested in machines, in industrial processes, or in materials, is ambitious to prepare himself for the engineering profession and for nothing lower.

TABLE 6.—*Enrollment in nondegree curricula*

Year	Curricula in trades and industries		
	2-year	1-year	Less than 1 year
1	2	3	4
1923–24	248	163	102
1924–25	204	45	262
1925–26	165	44	236
1926–27	173	44	182
1927–28	127	37	280

Only one land-grant engineering college has had considerable success with curricula in trades and industries not leading to degrees; however, it is reported that this work is to be discontinued because of decreasing demand during recent years. This particular engineering college has offered 2-year noncollegiate curricula in electrical, mechanical, road making, and structural; one 1-year curriculum in auto mechanics; and a special drafting course one quarter in duration. The 2-year curricula had in common such subjects as English, algebra, geometry, trigonometry, shop accounting, industrial economics, drafting, and shop and elementary physics. Those taking the electrical course received special instruction in electric wiring, electrical machinery, steam and gas machinery, electric transmission and distribution, and estimating and planning. Students in the 2-year mechanical course devoted more time to power machinery, mechanics and materials, shop work, and heating and ventilating. Those who elected the road-making course received instruction in surveying, specifications and plans for construction work, and cost keeping and estimating. The structural course devoted considerable time to structures. In the 1-year automobile course the only nontechnical subject was English, and all of the time was devoted to specialized technical instruction.

Intensive short courses for mechanics.—During the World War every land-grant engineering college trained mechanicians for the United States Army. This instruction was given through intensive, practical courses which were 10 weeks in duration. After the war a number of land-grant colleges continued such intensive courses for the purpose of training tractor operators, electricians, contractors, carpenters, blacksmiths, machinists, foundrymen, automobile-garage mechanics, and similar trades. While several land-grant engineering colleges are still offering this type of instruction, the enrollment in most cases is too small to justify the expense.

Short-unit courses and conferences.—To meet the needs of industry for technical instruction other than that leading to degrees, 24 land-grant engineering colleges are offering with great success one or more short-unit courses or special conferences varying in length from three days to one week in such fields as highway construction, the installation and care of electric or gas meters, foundry work, operation of refrigerating plants, laundry work, foremanship, steel treatment, welding, tractor operation, building contracts, plumbing, central heating-plant operation, power-plant operation, telephone-plant engineering, mining, and electric-line foremanship.

Practical experience rather than educational qualifications form the basis for admission to these courses. No academic credit is granted. Ordinarily, such conferences or short-unit courses are held at the land-grant college. In one case district road schools of two days each are held in different parts of the particular State, in addition to the main road school of one week's duration at the institution. Only in exceptional cases are fees charged to those who attend such short-term courses.

About 4,600 people were benefited in the year ending June 30, 1928, by this type of instruction. The possibilities of service to the public through this instruction are great, and all land-grant colleges may advantageously offer short-unit courses for the benefit of the industries of their localities. This type of instruction reacts beneficially to engineering instruction, since the teachers and students are thus brought into contact with mature and practical men who are engaged in industrial pursuits.

Special classes.—In addition to the short-unit courses, six institutions are conducting special classes in industrial centers in factory management, foremen training, steel treating, electricity, power plants, automobiles, metallurgy, concrete construction, elementary mechanics, and other subjects that are of value to the industries and trades of the locality served by the land-grant college. Only two institutions offer any such nonresident courses for college credit. In the other institutions these courses are of a different character and less mathematical than the corresponding subjects in the engineering curricula. For the year ending June 30, 1928, there were enrolled 8,142 in noncredit classes and 1,270 in credit classes. This type of instruction should be enlarged, particularly in the larger cities served by the land-grant colleges.

These classes are usually held in the evening once or twice per week during the academic year and are taught either by teachers from the engineering college or by special teachers employed by the college in the particular locality. In the latter case the instruction is outlined and supervised by the engineering college. In one State the

training of foremen is carried on by the land-grant engineering college with a portion of the expense paid by the State board for vocational education out of the Smith-Hughes funds. In most cases the fees charged pay a considerable portion of the actual expense. No educational test is required for entrance to noncredit classes, but ordinarily those who are engaged in technical occupations are admitted.

The engineering divisions of only eight institutions are of the opinion that courses in general education, such as English or mathematics, should be offered to those who are attending special classes or are benefiting by the short-unit courses. However, other educational leaders are inclined to disagree with the majority of engineering deans in regard to this matter and to approve the opinion of the eight divisions that believe such instruction should be given to these classes.

Qualifications of teachers for noncollegiate instruction.—The land-grant engineering colleges report that 36 teachers are devoting full time to noncredit instruction and 6 to credit instruction. Of those giving noncredit instruction, 30 are college graduates, 2 have had one or more years of college training, and 4 have had no college training. Thirteen have the same qualifications as a professor of engineering and 14 have had more than 5 years of engineering experience. All of those who give instruction for credit are college graduates, but only one-third have had more than five years of practical experience. Fifteen institutions give to those who are responsible for instruction not leading to degrees the same ranks as to members of the resident engineering staff.

Cooperation with other agencies in technical training. In some cases the land-grant engineering colleges are cooperating with other agencies in technical education of noncollegiate grade. Seven are cooperating with the Young Men's Christian Association of their States, 1 with the Knights of Columbus, 6 with the chamber of commerce, 6 with civic clubs, 7 with the training schools of industries, 12 with the public schools, and 8 with other colleges in their States. While it may be impractical for many institutions to offer nondegree technical curricula and undesirable for some engineering colleges to give noncollegiate instruction, all should cooperate with other agencies of their States in developing all types of technical instruction.

Engineering Research

Organized engineering research.—Thirty-five land-grant institutions have engineering experiment stations in which organized research is carried on. Up to June 30, 1928, these engineering experiment stations had published 808 bulletins in which the results of the investigations were reported.

About one and one-third million dollars was spent on engineering research in the land-grant institutions during the year ending June 30, 1928. Of this only about one-half million dollars was supplied by the institution or by State legislatures. Very little was secured from the Federal Government but more than one-half of a million dollars was donated to three land-grant engineering colleges by industries, railroads, and public utilities who cooperated in practical investigations.

The engineering experiment stations at the University of Illinois and Iowa State College were organized in 1903 and 1904, respectively at Pennsylvania State College in 1908, University of Missouri in 1909, Kansas State Agricultural College in 1910, Ohio State University in 1913, State College of Washington, University of Wisconsin and Agricultural and Mechanical College of Texas in 1914, University of Maine in 1915, Colorado Agricultural College and Purdue University in 1917, and 20 since 1920. Only five of these stations receive any special State support and in at least 10 institutions the engineering experiment stations exist only on paper. As a matter of fact, fewer than 10 of the land-grant college engineering experiment stations are receiving support from any source sufficient to develop research in engineering.

Chapter V.—Staff

Engineering Teaching Staff

In the survey of engineering education by the Society for the Promotion of Engineering Education, the figures for 143 engineering colleges are given and these show that about 36.5 per cent of all the teachers hold the bachelor's degree, 9.5 per cent the master's degree, 29.5 per cent professional degrees, 4.5 per cent the doctor's degree, and 14 per cent hold no degrees.

The data upon this matter from 1,425 engineering teachers in the land-grant colleges [3] were not collected upon a basis strictly comparable to those of the Society for the Promotion of Engineering Education study but show that of this group in 1928, eliminating the 119 that did not furnish the information, less than 4 per cent had no degree. Even though it were assumed that all of the 119 who failed to answer this question hold no degrees, the percentage would still fall slightly below that of the Society for the Promotion of Engineering Education study. The land-grant survey returns show that slightly more than 56 per cent of the 1,306 who furnished complete information had a first degree only; approximately 35 per cent the master's degree; and 4.5 per cent the doctor's. Ten had honorary master's and 17 honorary doctor's degrees in addition to those already listed.

The distribution of degrees as shown is supported in general by the record of the number of years training beyond high school received from the same group of staff members. Four hundred and sixty-six did not have more than 4 years; 559 had from 5 to 6; 300 had 7 or more; 100 did not furnish the information.

In connection with the training of the land-grant engineering staffs it is of interest to note that of 495 reporting on the point, 215 had no training in education subjects; 144 had less than 12 semester hours; 64 from 12 to 23; and 72 more than 24 semester hours of credit in professional education subjects.

Professional activities.—One hundred and ninety-three land-grant engineering teachers hold membership in the American

[3] Of this number, 1,270 were employed full time by the institutions—49 from 75 to 99 per cent of their time, 52 from 50 to 74 per cent, 17 less than half time, and no information was available for 37.

Society of Civil Engineers, 214 in the American Society of Mechanical Engineers, 162 in the American Institute of Mining and Metallurgical Engineers, and 17 in the American Institute of Chemical Engineers. Thus, 616 engineering teachers hold membership in the five major national professional engineering societies. This is slightly less than 38 per cent of the staffs in land-grant engineering colleges teaching in these fields. The percentage should be much greater. In additon to these, 111 are members or fellows of the American Association for the Advancement of Science, 62 of the American Society for Testing Materials, 32 of the American Institute of Architects, and a number of many other national bodies.

The interest that land-grant college engineering teachers have in engineering education is evidenced by the fact that 751 are members of the Society for the Promotion of Engineering Education. This, however, is only one-third of the total number of engineering teachers in the land-grant institutions.

Further information concerning the professional interests of land-grant college teachers of engineering is afforded by reports secured by this survey from 1,425 engineering teachers, approximately two-thirds of the entire staff membership. Of this number 1,136 belong to one or more professional or learned societies, 80 per cent of those making returns. Although it is not probable that 80 per cent of the staffs hold such memberships, the number reported by only two-thirds of the staff constitutes more than 50 per cent of all the engineering faculties in the land-grant colleges. Further, in 1927–28, 708 report attendance upon meetings of such organizations.

One hundred and seventy-two land-grant engineering teachers are serving on committees of State and national engineering societies. Of 1,425 members of engineering staffs in land-grant institutions, 241 report during the last five years publications, solely of research character; 161 popular publications; and 153 have written both popular and research material. Thus, more than a third of those reporting have been productive through the agency of publication.

Improvement of teaching.—Forty-three land-grant institutions give special encouragement to their younger teachers to pursue graduate study; nearly all, however, favor graduate study at other institutions than the one from which the teacher has the bachelor's degree.

The distribution of time of the engineering staff as between different activities applicable to their institutional time is indicated by Table 7.

TABLE 7.—*Distribution of institutional time*

Type of work	Number of cases	No time	Per cent of time									
			1–9	10–19	20–29	30–39	40–49	50	60	70	80	90
1	2	3	4	5	6	7	8	9	10	11	12	13
Undergraduate	1,277	138	10	35	49	44	53	105	118	143	144	438
Graduate	1,246	920	123	101	54	18	4	10	6	2	4	4
Research	1,243	841	93	127	74	25	12	18	5	5	2	41
Other creative activity	1,236	959	77	84	51	20	9	14	4	6	1	11
Administrative	1,245	641	253	151	67	49	24	25	18	9	3	5
Extension	1,233	1,052	68	28	17	6	4	8	3	6	4	37
Public contacts	1,239	838	294	84	15	2	1	4	1	0	0	0

Thirty-nine institutions are endeavoring to improve instruction by special conferences, 20 invite special lecturers from the outside, and an equal number arrange for lectures on educational topics by members of their own staff. Twenty-nine offer courses in education for staff members and an equal number of colleges encourage travel.

In only 11 institutions does the school, college, or department of education aid the engineering staff in its efforts to train inexperienced teachers and in studies of their teaching problems. Thirty-one institutions state that their engineering staff receives no aid from the school or department of education.

In only 19 institutions is it customary for the heads of departments and deans to visit classes of engineering teachers. However, 34 institutions encourage the younger and inexperienced teachers to visit classes of older teachers in order to observe teaching methods.

Thirty-nine institutions make a definite effort to aid their younger teachers in improving the mastery of subject matter and also assist them in making contact with industry.

Engineering teaching staffs meet only infrequently to discuss teaching problems and in only seven institutions is there any systematic effort made to help the younger teachers in learning the technique of teaching. In general, heads of departments and deans should take greater responsibility in connection with the training and development of their teaching staffs. Deans of engineering in particular should be educational directors and should have as their main task the improvement of the quality of instruction in their division of the institution. Both heads of departments and deans should be certain that the young and inexperienced teachers are given systematic instruction in the technique of teaching and encouragement to improve the mastery of the subject matter by special courses, by contacts with industry, and by research problems.

Summer schools for engineering teachers.—The Society for the Promotion of Engineering Education, realizing that advances in engineering education can only be made by improving the quality

of instruction given to engineering students, has sponsored five summer schools for engineering teachers, four of which were held at land-grant engineering colleges. About 300 engineering teachers were benefited by these summer schools and their continuation, which is assured by a number of years, should react beneficially to engineering instruction.

In the summer of 1927 summer schools for teachers of engineering mechanics were held at the University of Wisconsin and at Cornell University. Eighty-two teachers attended the sessions and the staff of each school comprised a director, a secretary, three teachers of mechanics, and a group of specialists in various fields. These teachers represented 64 institutions and were distributed as follows: 15 professors, 10 associate professors, 28 assistant professors, 27 instructors, and 2 of other ranks. A professional teacher of education also served continuously on each staff and acted as a general adviser and lecturer. The programs of the two schools included formal lectures, model teaching exercises, demonstration lectures, laboratory exercises, seminars, general group meetings, and committee meetings. Methods of teaching were stressed in all parts of the program. Mechanics was chosen as the first subject, as it is fundamental in all major engineering curricula.

During the summer of 1928 a summer school for teachers of physics was held at the Massachusetts Institute of Technology and one devoted to electrical engineering at the University of Pittsburgh in cooperation with the Westinghouse Electric and Manufacturing Co. As in 1927 the schools were each of three weeks' duration. Forty teachers attended the physics school and 54 the electrical school. The staff of the physics school included 8 teachers of physics, an educational adviser, and 13 special lecturers. The electrical school staff comprised 11 teachers, 2 educational advisers, and 29 special lecturers from industry.

The 1929 session on mechanical engineering was held at Purdue University June 27 to July 18, 1929, and was attended by 88 teachers, who represented 60 institutions located in 36 States of the United States and 2 Provinces of Canada. The staff comprised 23 teachers who came from 13 engineering colleges and 27 lecturers from industry. In addition to these, 13 teachers attended one or more meetings as auditors. A special feature of the program was a 3-day trip to Chicago, where 14 engineers and executives of the Western Electric Co. gave a series of lectures on organization, engineering production, inspection, purchasing, cost control, material handling and storage, personnel practices, and development problems of modern industry. Lectures on general educational practices and principles were given at Purdue University by two educational authorities. To provide a background for engineering instruction

the historical aspects of mechanical engineering were discussed. The purposes and scope of different courses in the curriculum were analyzed through lectures, and these were followed by special talks on the methods of teaching these subjects. A series of lectures on the advanced phases and application of mechanical engineering were delivered by noted authorities.

An important part of all the summer schools is the preparation of committee reports, which are intended to summarize the conclusions reached by those in attendance.

In nearly all cases all of the teachers, including guests and staff members, are housed together. This arrangement affords excellent opportunities for the informal exchange of ideas and the formation of friendship between those in attendance.

The interest of the land-grant institution in improved teaching is evidenced by the fact that 137 teachers were represented as members and on the staff of the four schools as follows:

TABLE 8.—*Teachers represented as members and on the staff of five institutions*

Year	Institution	Number of teachers on staff
1927	Wisconsin University session	27
1927	Cornell University session	15
1928	Massachusetts Institute of Technology session	25
1928	Pittsburgh University session	19
1929	Purdue University session	51

Salaries of engineering teachers.—In Table 9 are given the maximum, minimum, median, and most frequent salaries for land-grant college engineering teachers of different ranks as derived from institutional reports. These figures are very nearly the same as those compiled by the Society for the Promotion of Engineering Education as reported in Bulletin No. 4 of the Investigation of Engineering Education. Considering the earnings of engineers in practice these salaries are extremely low.

TABLE 9.—*Salaries of land-grant college engineering teachers*

Rank	Number reporting	Maximum	Minimum	Median	Most frequent
1	2	3	4	5	6
Dean	43	$9,000	$3,750	$5,500	$5,500
Professor	440	7,500	2,250	4,500	4,000
Research professor	4	6,000	3,250	4,000	4,000
Associate professor	230	5,000	2,000	3,250	3,500
Assistant professor	341	4,500	1,750	2,750	2,500
Instructor	562	3,500	800	1,800	1,800
Total	1,620				

Individual reports from 1,425 engineering staff members, including those employed both full and part time, show the following distributions:

TABLE 10.—*Number of staff members employed and salary range*

Number of cases	Salary	Number of cases	Salary
11	$100– $499	83	$4, 500–$4, 999
41	500– 999	30	5, 000– 5, 499
28	1, 000–1, 499	20	5, 500– 5, 999
149	1, 500–1, 999	23	6, 000– 6, 499
284	2, 000–2, 499	2	6, 500– 6, 999
246	2, 500–2, 999	12	7, 000– 7, 999
196	3, 000–3, 499	5	8, 000– 9, 999
162	3, 500–3, 999	12	No data.
121	4, 000–4, 499		

These regular salaries were supplemented in relatively few instances by perquisites. The reports show 24 teachers receiving perquisites of less than $500 in value and 17 of greater value than $500. Nor are institutional earnings for extra work, such as night classes, extension and summer session, very great. In 79 cases they were less than $299; in 113 from $300 to $599; in 36 from $600 to $899; in 18 from $900 to $1,199; and in 20 more than $1,200.

It is frequently assumed that engineering teachers add considerably to their salaries by outside earnings. Reports on this point are very incomplete but are sufficient to indicate that in many cases the amount of these earnings are sometimes exaggerated. Of the 1,425 individuals reporting 890 did not furnish information, but the following summary shows relatively few large additional incomes from employment outside institutional earnings:

TABLE 11.—*Number of cases and amount of earnings outside of institution*

Number of cases	Amount outside earnings	Number of cases	Amount outside earnings
122	$100– $299	24	$1, 200–$1, 799
219	300– 599	15	1, 800– 2, 399
70	600– 899	21	2, 400– 4, 999
49	900–1, 199	15	More than $5,000

Outside engineering practice by teachers.—Only three land-grant colleges do not permit their engineering teachers to do outside engineering practice during the academic year; all of the other institutions either encourage or do not restrict such outside practice, provided it does not interfere with the institutional duties of the teacher. In practically every institution it is expected that engineering teachers will keep their superior officers fully informed of such practice. In several institutions outside engineering practice may be carried on only upon the approval of the dean of engineering, who

is held responsible by the president of the institution for the type and quantity of such outside practice. No institutions place restrictions upon engineering practice by staff members during vacations.

Only in rare cases are teachers permitted to use institutional laboratory equipment in connection with their private practice. Usually problems which require equipment become projects of the engineering experiment station of the college, and all fees for such services go to the institution. In only three colleges are engineering teachers given extra compensation for tests of materials or machinery sent to the laboratories for such tests. All of the institutions charge fees for such tests, but in nearly all cases these fees are either appropriated to the department carrying on the tests or to the engineering college.

In nearly all cases teachers are forbidden to use the name of the institution in reports in connection with their private practice. The use of institutional stationery is also discouraged for other than official correspondence.

Tenure and factors influencing promotion of teachers.—Thirty-one institutions reported indefinite tenure for deans, professors, and associate professors. Assistant professors and instructors are usually employed for terms of one to three years. Assistants and fellows are appointed for one year.

In considering promotions, 38 institutions state that they place first the teacher's ability to arouse and to interest his students, 44 institutions place teaching ability first; 36 knowledge of the subject; 28 loyalty; 23 ability to cooperate and mental balance; 25 attitude toward the student. Nineteen institutions place promise of growth in the first place and 24 in the second place; 14 place fairness in grading in the first place and 29 in the second place. Personal traits are considered of major importance by 14, of secondary importance by 31, and of minor consequence by 2. Research ability is given first place by only 2 institutions, second place by 28, and 15 consider this of little or no importance. Personal leadership is given first place by 9, second place by 33, and 4 regard this as a minor qualification. Length of tenure is not given by any institution as of major importance, 25 consider this important, and 20 feel that it is of litttle or no importance. Authorship is given second place by 23 and an equal number consider this factor of no importance. Executive ability is placed first by 3 institutions, second by 23, and of no importance by 19.

From the foregoing it is evident that ability to interest students, teaching ability, knowledge of subject matter, and loyalty are the major factors which are considered in connection with the advancement of teachers.

Chapter VI.—Support and Organizations

Budgets of expenditures.—The annual budgets of the expenditures of land-grant engineering colleges for a 5-year period are given in Table 12. These figures show that about $11,000,000 were expended for engineering education at land-grant institutions during the year 1927–28.

TABLE 12.—*Annual budget of expenditures for engineering in land-grant institutions, 1924–1928*

Budget for—	1923–24	1924–25	1925–26	1926–27	1927–28
1	2	3	4	5	6
Salaries and wages	$6, 112, 701	$6, 216, 710	$6, 854, 017	$7, 274, 571	$7, 261, 652
Materials and supplies	578, 003	619, 172	670, 398	650, 908	633, 616
Equipment, replacements	212, 454	473, 610	221, 403	108, 714	884, 137
Equipment, new	208, 769	339, 098	197, 325	432, 780	275, 814
Land, buildings, and permanent improvements	682, 947	1, 187, 238	1, 083, 039	849, 546	1, 785, 073
Total	7, 794, 874	8, 835, 828	9, 026, 182	9, 316, 519	10, 840, 292

This expenditure has increased $3,045,414 during the 5-year period, or 39 per cent. The budget allowance for salaries and wages has increased during the same period $1,148,951, or 19 per cent. It should also be noted that the total expenditures of the land-grant institutions for salaries and wages were $70,709,216 for the year ending June 30, 1927. The expenditures for engineering salaries and wages for the same year were $7,274,571, or slightly more than 10 per cent. For materials and supplies in the year 1927–28 the engineering colleges received $650,908 out of a total of $34,937,742, or less than 2 per cent. The capital outlay for engineering for the same year including replacements and new equipment was $541,494 out of a total of $4,990,478, or nearly 11 per cent. Land, buildings, and other permanent improvements represented $849,546 out of a total of $14,076,455, or about 6 per cent. During the same year the engineering enrollment of these institutions was 29,528, plus 1,216 in architecture, out of a total of 149,606 students, or nearly 21 per cent. Since slightly more than half of the teaching load of engineering students falls upon the colleges of engineering, the budget allowance for engineering is low. The engineering student enrollment in the land-grant colleges during the period from 1923 to 1928 has increased from 24,792 to 29,528, or 19 per cent, and the budget allowance was increased by about the same amount.

Gifts for engineering.—During the 5-year period 1923–1928 the land-grant institutions received from industry a total of only $1,410,305. Of this amount only $140,880 was contributed for resident teaching, $28,682 for engineering extension activities, and about one and one-third million dollars for engineering research. Actually, the gifts from industry for resident teaching are somewhat in excess of the $140,880 already indicated, as considerable equipment is being

presented by industry to the engineering colleges, the exact value of which can not be accurately estimated. Despite a popular impression that industry is contributing considerable sums to engineering education, it is clear that it is contributing directly only a fraction of 1 per cent of the actual cost of this type of education. The responsibility for this type of education as for others lies, and should continue to lie, with the public.

Budgets for engineering research.—For the year ending June 30, 1928, the total expenditures for engineering research at 48 land-grant institutions were $498,646 of State funds as compared with $8,492,639 for agricultural research at the same institutions. In 1925 the ratio of expenditures for agricultural and for engineering research was 21 to 1, in 1920 it was 30 to 1, and in 1910 the ratio was 50 to 1. These data show that support for engineering research at land-grant institutions is increasing, but that the total amount is small considering the great numbers of industrial problems that are dependent upon engineering research for solution.

Budget for engineering extension.—The amount expended for non-collegiate technical instruction and for other types of engineering extension in all land-grant colleges was $311,451 for the year ending June 30, 1929. During the same year the Federal, State, and county funds for agricultural extension totaled $12,758,067 for only 36 States. Better support should be provided for this type of instruction which, as is indicated in another part of this report, is greatly needed by the industrial population of this country.

The Physical Plant for Engineering

Replies to questionnaires indicate that only in exceptional cases are the facilities in buildings and equipment adequate for the large number of students. The following information is presented as a summary of the present conditions.

Buildings.—Twenty-five institutions report that their laboratories are inadequate only eight state that they are ample.

Twenty-nine institutions have insufficient facilities for the assembly of large classes and only seven are well provided for in this respect.

Twenty-three institutions lack classrooms, 17 have inadequate space for shops, and 14 have too little drafting-room space.

The offices are ample only in 11 institutions, sufficient in 19, and inadequate in 18.

The engineering equipment of 14 land-grant institutions is housed, at least in part, in temporary quarters and 11½ per cent of the engineering instruction in these institutions must be housed in these temporary quarters.

The illumination, heating, and ventilation of the engineering buildings are usually reported either as excellent or as satisfactory. Only 11 institutions report the foregoing services as unsatisfactory.

The condition and upkeep of the engineering buildings is reported by 14 institutions as excellent, by 28 as satisfactory, and 7 claim unsatisfactory conditions.

Equipment.—In Table 13 are given statistics concerning the value and condition of engineering equipment, also, of the needs for new equipment. Thus, the value of all engineering equipment on July 1, 1928, was $8,764,913 and equipment valued at $3,243,010 is urgently needed. The table also indicates that only about two-thirds of the equipment is modern, 13 per cent is antiquated or useless, and about 24 per cent is old but usable. When it is recognized that 17.7 per cent of the value of all equipment came through gifts by industry it is evident that the investment in equipment is only about $7,000,000.

TABLE 13.—*Value of engineering equipment*

School or department	Value of equipment on July 1, 1928	Average percentage of equipment			New equipment needed
		Modern	Old but usable	Antiquated or useless	
1	2	3	4	5	6
Civil engineering	$2,843,051	60.0	31.2	8.8	$759,000
Mechanical engineering	2,529,174	49.4	37.9	13.7	729,535
Electrical engineering	1,233,792	46.4	31.1	17.5	864,000
Chemical engineering	450,614	79.0	11.6	9.4	191,000
Mining and metallurgy	271,346	74.0	4.5	21.5	55,000
Other departments	1,433,936	66.4	19.5	14.1	644,475
Total	8,764,913				3,243,010

Criticism of the name "agricultural college."—The engineering graduates[4] of the separate land-grant colleges of Colorado, Kansas, North Dakota, Oregon, and South Carolina quite generally were of the opinion that the name "agricultural college" is detrimental to the engineering alumni of such institutions. No objections were offered to the name "State college of agriculture and mechanic arts" or to "agricultural and mechanical college," although the designation "State college" seems to be preferred to the other names.

Statements have been made that engineering graduates of "agricultural colleges" are not thought of as graduates of engineering colleges. Experience with the employers of engineering graduates leads to the conclusion that the complaints of engineering alumni of "agricultural colleges" have considerable justification. Engineer-

[4] Part V of this report, "Alumni and former students," presents survey results with reference to occupations, further training, and salaries of graduates and ex-students of engineering in land-grant colleges.

ing staff members of "agricultural colleges" also feel that they are at a disadvantage and have to give excuses to their professional friends for teaching engineering at "agricultural colleges."

Internal Organization Problems

In this section will be recorded present practices with reference to the organization and administration of the engineering activities of land-grant institutions. In 28 institutions the governing boards consider that the most important function of the engineering organization is to give the individual student suitable preparation for a profitable life career. Special services to meet State industrial needs are considered of secondary importance. The organization of the engineering staffs of land-grant institutions has, accordingly, been developed to give major attention to undergraduate engineering education. In the agricultural divisions of these institutions research and extension activities have been given consideration at least coordinate with resident teaching, but engineering has always been dominated by resident teaching, while research and extension have been largely incidental activities.

All States interpret the Morrill Acts and supplementary legislation as carrying a clear obligation to maintain a college of engineering. However, neither the constitution nor the organic laws of the States, except two, determine or prescribe the organization and activities of engineering instruction; also, in only two cases has the State legislation prescribed the engineering research activities of institutions. State legislatures or the governors of States have in eight cases instigated special surveys of land-grant institutions which included the engineering divisions of such institutions. It is customary for special committees of State legislatures to visit and inspect the work of institutions; also, in some cases the governors of States have appointed special visiting committees. However, as far as can be determined, neither the State legislatures nor the governors of States interfere with the internal organization of the engineering divisions of land-grant institutions.

Organization of the major division devoted to engineering.—In the 26 institutions which are combined land-grant colleges and universities the term "college" is usually applied to the major division devoted to engineering. In about half of the 20 separate land-grant colleges the term "division" is used. Six separate land-grant colleges use the term "school." One designates its work in chemical, civil, electrical, and mechanical engineering as "schools." In the 5 States where State universities are not maintained but land-grant colleges are provided, 2 use the term department, 1 has a college of engineering, 1 a school of engineering, and the Massachusetts Insti-

tute of Technology, which is mainly an engineering college, has no separate division for engineering.

The major engineering division has as its chief executive officer a dean who is responsible to the president of the institution for the administration of the engineering curricula, the quality of instruction, and the proper expenditure of the funds allowed in the engineering budget. In many institutions, although there are notable exceptions, the dean of engineering is also the director of the engineering experiment station and is responsible for the quality of research and for the funds allowed by the institution or by cooperating agencies for this purpose.

The dean of engineering formulates and executes policies with reference to the engineering college; recommends to the president the appointment of engineering staff members upon institutional committees; unifies the activities of the engineering departments and builds up the solidarity of his college or division; presents to the president the needs of the departments of his college; represents the engineering college officially before the public; serves as a medium of communication of all official business of the engineering college with other institutional authorities, students, and constituents; assists in coordinating the activities of the engineering division with other major divisions of the institution; makes recommendations to the president concerning engineering budgets; certifies the pay roll of the division; approves requisitions for purchase of supplies and equipment; makes annual and other reports on the work of the engineering college; directs publicity for engineering; selects, subject to the approval of the president and trustees, engineering staff members; approves and supervises the publications of research and other reports on engineering; supervises department heads; is educational director, and as such conducts activities for the improvement of teaching; oversees relations between engineering faculty and students; directs personnel, placement, and vocational counseling of engineering students; and advises the president concerning the physical plant of the institution.

The main division devoted to engineering is usually made up of the following departments: (*a*) Departments the heads of which are responsible to the dean of engineering for the administration of the engineering curricula and the technological instruction in civil, electrical, mechanical, chemical, mining, architectural, and other branches of engineering. Architecture, when taught at a land-grant institution, is also usually administered under the dean of engineering. (*b*) General technical departments which are service departments to the engineering curricula. Such departments usually include instruction in general engineering drawing and descriptive geometry, shop practice, mechanics, and other branches which are common for all engineering students. The heads of such departments also report to the dean of engineering. In some institutions shop practice is taught in the mechanical engineering departments and mechanics in the civil or in the mechanical engineering department. The tendency at present, however, is to teach subjects which are common to all engineering curricula in separate technical service departments. (*c*) Departments in science and mathematics. In one land-grant university all of the instruction in mathematics, chemistry, and physics

is administered in departments the heads of which report to the dean of engineering. In one institution physics is under the college of engineering, and in another case chemistry is a department of the engineering division. However, the aforementioned cases are exceptions to the general practice where instruction in science and mathematics is administered by the dean of the college of arts and sciences. (*d*) Connection of the engineering experiment station with the engineering division or college is a plan of organization that should benefit the teaching staff and students by reason of the engineering research with which they thus come in contact. (*e*) The engineering extension department enables the engineering staff to come into direct contact with the industries of the State and to be of assistance to those who can not be benefited by resident engineering instruction.

It is only by placing engineering teaching, research, and extension under the direction of one responsible head that full cooperation at a minimum cost may be secured.

The major duties of a head of an engineering department are to act as adviser to the dean; to formulate and execute departmental policies; to unify the department and build up departmental solidarity; to improve the standards and quality of teaching; to make budget recommendations for consideration by the dean of engineering; to certify the pay roll of the department; to prepare requisitions for departmental supplies and equipment; to oversee the expenditures of the department; to make annual and other reports to the dean concerning the activities of the department; to adjust the teaching load of the department staff; to assign teachers to classes; to interview delinquent students; to initiate selection of departmental staff members subject to the approval of the dean; to cooperate with the dean and other officers of the college in personnel, placement, and vocational guidance of students; to sponsor honor and professional departmental societies; to make recommendations to the dean concerning changes in curricula; to oversee registration of students; and to approve students' programs of studies. In some institutions the last two are carried on by the dean.

Curricula offered.—Civil, electrical, and mechanical engineering are offered in 47 land-grant colleges, chemical engineering in 32, mining in 19, and architectural in 14.

Engineering faculty.—In the 26 institutions which are combined land-grant colleges and universities, there are separate engineering faculties empowered to deal with most of the problems pertaining to engineering curricula and students. At Cornell University the college of engineering is made up of the three schools of civil, electrical, and mechanical engineering. Each of these schools has a separate faculty.

Twelve separate land-grant colleges reported that they have separate faculty organization. Usually the separate land-grant college engineering faculty has no separate organization or power, and all legislation pertaining to curricula and students is carried on by the general faculty of the institution. While this plan is satisfactory in a very small institution, the self-contained engineering college with its separate faculty should be the plan of organization for institu-

tions which have more than 500 engineering students. It is only by this method that unity of purpose and close cooperation of the different branches of engineering may be secured.

Financial relations.—The engineering colleges, like other major divisions of land-grant institutions, usually benefit from funds that come to the institution from the Federal Government, State government, student tuition and fees, interest on endowment, and other sources of income. Exceptions to these are Cornell University, which receives State funds only for agriculture, home economics, and veterinary science, and the Massachusetts Institute of Technology, which receives no State funds for any purpose.

Nearly all institutions have definite budgets of expenditures for each of the major divisions. The engineering budget is prepared by the dean of engineering in cooperation with the heads of departments. This budget is then submitted by the dean to the president. In some cases the dean consults the comptroller or other institutional business officer before the final budget is submitted to the president for consideration. After the budget is approved by the president, orders for supplies or capital expenditures are made on requisitions prepared by the head of the department and approved by the dean of engineering. Expensive items of equipment usually require the special approval of the president, as do also traveling expenses outside of the State.

Engineering laboratory, shop, drafting room, field, and other student fees are credited to the engineering college budget in 19 institutions. In the majority of cases, however, all such fees go to the institution to be distributed in connection with other receipts. Earnings for commercial and service tests nearly always go to the engineering college or are added to the budget of the engineering experiment station.

Staff appointments and promotions.—Except for a few special cases in small institutions, where the president handles all of the details, staff appointments are handled as follows: When a vacancy occurs the head of the department concerned initiates the selection of candidates. He then presents his findings to the dean of engineering, who recommends to the president concerning the appointment to be made. The president in all institutions has the authority to appoint subject to the approval of the governing board. In larger institutions the president seldom questions the recommendations of deans concerning staff appointments. It is customary, however, for the dean in the case of important positions, such as full professors, to arrange that the president not only has a complete record of the candidates recommended but also interviews the most promising individuals.

Dismissal of staff members is made only upon the recommendation of the dean and head of the department concerned. Dismissal of staff members occurs only in extreme cases, such as distinct incompetence, low morals, or disregard of national laws.

Recommendations concerning increase in salaries or promotions in rank are made by the head of the department to the dean who transmits such recommendations to the president. Usually such matters are considered only in the spring of the year when the annual budgets are prepared. In one institution promotion to be a voting member of the institutional faculty must have the approval of two-thirds of the heads of departments of the institution who act as a committee in all such cases.

Alumni contacts.—Only in the largest institutions do the engineering colleges maintain relationship with engineering alumni distinct from those carried on by the general alumni association of the institution. These are usually very informal in character and in only one case was a distinct engineering alumni association reported. Contact with engineering alumni is carried on by every engineering college through news letters, addresses before alumni associations, aid to alumni in connection with employment problems, and through social contacts of individual staff members.

Contact with the public.—Four institutions report that special officers are employed to make contacts with industry who devote from one-fifth to one-third time to the engineering college. In nearly every engineering college the dean of engineering and the more experienced staff members are constantly in contact with the industries of their specialties. Institutions which maintain engineering experiment stations and engineering extension departments have additional opportunities for contact with the public. The placement problems in connection with the large numbers of graduates again places the engineering staff members in direct contact with a great variety of industries. The fact that 175 members of land-grant engineering college staffs are members of committees of national engineering societies indicates rather close contact with industry. While a large per cent of these members of committees are selected from the most prominent and most centrally located land-grant institutions, the promising and most active engineering teachers of smaller colleges are to an increasing extent appointed on such committees. In general, institutions which have a liberal policy with regard to the payment of traveling expenses of staff members to national meetings and conferences pertaining to engineering maintain the best contacts with industry.

Nearly every institution has an officer who gives full or part time to institutional publicity. Replies from institutions indicate that

only in exceptional cases is 10 per cent of the time of the publicity officer devoted to engineering. One cause for this is the fact that engineering staff members in general are very reluctant about giving out technical information in a popular style.

Technical bulletins, papers before engineering societies, and articles in the engineering press are considered by all engineering staff members as types of proper publicity. Short newspaper items about special accomplishments of students, special achievements of alumni, installation of distinctive equipment, or outstanding investigations by staff members are favored by more than half of the institutions. Radio for engineering publicity is favored by a considerable number of institutions. Only in rare instances have exhibits at fairs and conventions been practical; in most cases such exhibits have led to wrong ideas about the activities of the engineering college or the work of engineers. News items in alumni and student publications concerning activities of engineering colleges are always favored.

In one institution special publicity committees are set up in each engineering department and a special publicity representative from each department cooperates with the publicity officer of the institution. This institution receives considerable engineering publicity in the Associated Press.

The deans of nearly all land-grant engineering colleges state that more general publicity for engineering is needed and the majority feel that an experienced publicity agent could devote advantageously considerable time to engineering.

Responsibility for the physical plant.—In 12 cases, including most of the small institutions, the dean of engineering or one of the engineering professors is responsible for the physical plant of the institution, including buildings, heating plant, power generation and distribution, water supply, sanitation, roads, and walks. As the institution grows in size this practice is undesirable as it becomes detrimental to the educational program. In one large, separate land-grant college a superintendent of the physical plant is responsible for the aforementioned services, but he reports to the dean of the division of engineering. Even this plan places an undue burden upon the dean of engineering and interferes with his main duties pertaining to teaching, research, and extension in engineering.

Thirty-two institutions, including most of the larger engineering colleges, report that the dean of engineering acts as the chief advisor to the president in connection with all of the engineering problems of the institution but neither he nor his staff members have responsibility for the physical plant. In such cases the superintendent of the physical plant reports to the controller or business officer of the institution. This plan which is favored by engineering faculties as

an advisory relationship in connection with the engineering problems of the institution enables them to prevent the installation of obsolete equipment or wrong service systems. Only in one case is the engineering staff absolutely ignored in connection with the engineering problems of the institutional plant. In one land-grant institution operating under the advisory plan the dean of engineering has designated one of his staff members as the advisor to the superintendent of the physical plant.

In a number of cases members of the engineering staff have designed institutional power and heating plants, water works, and sanitation systems, but act only in a consulting capacity in connection with their operation. Such a contact with the physical plant of the institution is most desirable. In installing new power and heating plant equipment the educational as well as the service features should be considered. Contact of the engineering staff members in connection with new installations also enables the institutions to secure special price discounts on account of the standing and acquaintance of engineering teachers with industry.

General notes on organization.—Well-organized engineering colleges with the duties and responsibilities of deans and heads of departments carefully defined are very exceptional. In the majority of land-grant institutions there is either no organization scheme or the plan is only a paper one. For best results the dean of engineering, as the chief executive officer of the main division pertaining to engineering, should be given definite authority and should be held responsible for results. In a similar manner the dean should outline the duties of heads of departments and should hold them responsible for the effective administration of their departments. The dean of engineering should be in responsible charge of all teaching, research, and extension activities in engineering. In a similar manner the heads of the engineering departments should be in charge of the teaching, research, and extension activities in their fields.

Separate engineering faculties with power to handle questions pertaining to curricula, discipline of students, and other internal problems should be set up for every engineering college. Only matters of general institutional concern should be taken up with the general faculty of the institution. The engineering faculty should meet at least once per month and when not occupied with routine matters should consider educational problems in engineering. It is only by this plan that the fullest cooperation between engineering staff members may be secured and interest in educational problems increased.

Chapter VII.—Services of Land-Grant Engineering Colleges

The previous surveys of engineering education, while dealing very fully with the educational problems of the engineering colleges, have given little or no attention to the direct contributions of these institutions to the social and economic problems of the Nation. They have not considered the major services which engineering colleges are rendering to their communities, the States in which they are located or the Nation as a whole. The land-grant engineering colleges, which owe their existence to national and State beneficence and which receive their major support from State funds, should be particularly interested in services which are of direct benefit to the public.

Replies to questionnaires indicate that all land-grant engineering colleges consider that they serve the public best if they prepare the engineering students enrolled in their institutions for most effective performance as members of the engineering profession. Accordingly, an effort was made to find out through questionnaires the direct contributions which these land-grant engineering colleges have made through their graduates.

Since a higher educational institution is a place where scholars teach and create new knowledge, an endeavor was also made to discover what the engineering staffs of land-grant colleges have contributed not only through teaching, but also as the result of their investigations, discoveries, and practice as engineering experts. A summary of the results of the most outstanding researches by the land-grant engineering colleges will also be given in this part of the report.

These statements will be followed by data secured through questionnaires of the special services rendered by the land-grant engineering colleges to the United States Government, State agencies, municipalities, industry, and the engineering profession.

Major Accomplishments of Land-Grant Engineering College Graduates

In the 55 years from 1873 to 1928 the land-grant institutions have awarded 47,677 bachelor's degrees in engineering and more than 5,000 master's degrees. During the same period at least 50,000 students who did not receive degrees received one or more years of instruction in engineering at these institutions. Since this country

has about one engineer for each 12,500 of population, or about 100,000 altogether, it is evident that a considerable portion of the engineering talent of the United States has been derived from land-grant institutions.

An effort was made by those in charge of the land-grant college survey to secure through questionnaires accurate data about the engineering graduates of each land-grant college and their contributions through discovery, invention, research, engineering practice, or other means that have resulted in the improvement of standards of living and human happiness. Unfortunately, even the best and largest institutions have only incomplete records of the accomplishments of their graduates. In the following paragraphs is included an incomplete summary of the contributions of land-grant college engineering graduates as reported by the institutions.

Pioneer experiments by engineers trained at land-grant institutions did much to place the design of concrete structures upon a rational basis. Their contributions in steel structures include the design and construction of steel bridges, tall buildings, industrial structures, and railway terminals. A considerable number of the leading architects and architectural engineers of the United States are graduates of land-grant engineering colleges. These have added greatly to American architecture in general and have improved industrial buildings in particular. Land-grant college trained engineers have been active in the design, construction, and operation of steam-electric and hydroelectric power plants. They have also contributed to pioneer work on electric power development and have headed firms that are concerned with financing, designing, construction, operation, and consulting services in connection with power generation. They are largely responsible for pioneer investigations which have been carried on with high voltage electric transmission by two industries and three universities The directors of the largest and most important laboratories in the world devoted to researches on telephone and radio hold degrees from land-grant engineering colleges. Graduates are largely responsible for pioneer work in the development of electric street railway and electric interurban systems. The first locomotive-testing plant in the world was designed by a land-grant engineering college graduate. His experiments on this plant and on air brakes, brake shoes, draft gears, and other equipment have contributed greatly to the standardization and improvement of American railway mechanical equipment. Land-grant college engineering graduates have had a leading part in highway research and in the development of the science and practice of highway design, construction, and maintenance. The ceramic industry of Ohio was developed by an alumnus of a land-

grant engineering college who also had an active part in placing the entire ceramic industry of America on a scientific basis. Land-grant college graduates have been pioneers in the application of sicence to mining and have been leaders in the introduction of electricity in coal mining.

They have been active in the solution of difficult problems in industries. They have contributed to agriculture by designing power-farming machinery, reclaiming arid lands, draining swamps, and placing within the reach of many farmers the household conveniences of city dwellers. They have contributed to flood prevention and to the solution of difficult harbor and river problems. Both in heavier and lighter than air flying, pioneer work is being done by engineering graduates of land-grant institutions. A complete account of the contributions of land-grant college engineering graduates during the World War would fill a large manuscript. At least 25,000 engineering graduates of these institutions served either in the Army or Navy or contributed their technical and business knowledge as civilian engineers. Fifty-eight deans of engineering are graduates of land-grant engineering colleges. In addition to these, hundreds of the leading engineering professors were trained at these institutions. These graduates have done much in shaping engineering education all over this country.

The directors of the research laboratories of the General Electric Co., the Westinghouse Electric & Manufacturing Co., the General Motors organization, and the American Telephone & Telegraph Co. hold degrees from land-grant engineering colleges, as do large numbers of the research staffs of these and other industrial laboratories. The directors of the United States Bureau of Standards, Reclamation Service, Public Roads, and of other important United States Government technical bureaus have been largely engineers trained at land-grant colleges. In addition to these, large numbers are serving the United States Patent Office and other technical bureaus in non-administrative capacities.

Engineering graduates of land-grant institutions are credited with many inventions and discoveries of value to the public. Among these are meters for measuring steam, air, electricity, and gas; instruments for the study of deformation of materials under stress and for industrial uses; special alloys; new processes of value to the chemical and civil industries; new building materials; steering gears, spark plugs, and carburetors for automobiles; new methods of welding metal; the tungsten lamp; the Coolidge tube; and many special machines.

The presidents of the General Electric Co., the General Motors Corporation, and of several of its companies, the Goodyear Rubber

Co., the SKF Industries, the American Bridge Co., the Arthur D. Little Chemical Co., the Mathieson Alkali Co., the Du Pont interests, the Union Gas & Electric Co., the New York Edison Co., Stone & Webster Co., and many others of the leading manufacturing and public-utility industries are graduates of land-grant engineering colleges. Graduates from these colleges are found in the presidencies of railroads such as the Illinois Central and the Great Northern; vice presidents of railroads such as the Missouri Pacific and the Pennsylvania, chief engineers and superintendents of motive power of a large number of railroads; and other important railway executive and technical positions. Even in finance the graduates are prominent. The head of the Babson statistical organization and the president of one of the largest banks in the world are land-grant college engineering graduates.

The foregoing summary of the accomplishments of engineering alumni should prove a source of great satisfaction not only to the land-grant institutions but also to the public at large which has so largely contributed to the support of these institutions.

Contributions of Engineering Teachers

The greatest contribution which any teacher can make is to train his students to think clearly, to act honorably, and to lead useful lives. The accomplishments of the engineering alumni of land-grant institutions, as enumerated in the last section of this report, indicate that their teachers have served society in a most remarkable manner. It is gratifying also to find from the replies to the questionnaires that in additon to training engineers the engineering staffs of land-grant institutions are responsible for many inventions, discoveries, and other special contributions. A summary of the most outstanding of these follows:

Through research and invention.—(*a*) Perfection of special processes for the manufacture of aluminum, soap, artificial building stone, and ceramic products; (*b*) invention of coal, gas, and steam calorimeters; (*c*) perfection of steam and gas engineering indicators; (*d*) perfection of special machines for testing materials of construction; (*e*) improvement in coal carbonization processes; (*f*) improvement of farm power machinery; (*g*) development of permanent farm structures; (*h*) development of new industries; (*i*) pioneer studies on coal mining and classification; (*j*) pioneer investigations of domestic and central station heating; (*k*) pioneer research on reinforced concrete, steel, and other structural materials; (*l*) pioneer experiments with locomotives and other railway mechanical equipment; (*m*) pioneer development work on carburetors and other automobile accessories; (*n*) pioneer studies which have resulted in data for the rational design of culverts; (*o*) fundamental studies of the action of soils and earths; (*p*) investigations in electric traction, high-voltage power transmission, nitrogen fixation, and electric communication (the inventor of the telephone, Dr. Alexander Graham Bell, received much assistance through studies by a professor of a land-grant institution); (*q*) experiments which have improved methods used for water

softening, sewage disposal, wood preservation, and the use of local clays for the manufacture of china and terra cotta; and (*r*) special investigations in connection with flood protection, drainage, and irrigation.

Publications

(*a*) *Textbooks.*—The two largest publishers of engineering reference and textbooks out of 371 titles by engineering teachers credit land-grant college engineering teachers with 243 books, or nearly two-thirds of the total. Thus engineering teachers of these institutions are responsible for a large portion of the textbooks and reference books used in colleges and by the engineering profession.

(*b*) *Bulletins.*—Land-grant engineering college staff members are authors of more than 1,200 bulletins which give the results of investigations.

(*c*) *Papers and articles.*—Besides about 150 papers annually before national engineering societies, land-grant engineering staff members are constantly contributing articles to the engineering press. It is difficult to secure an accurate list of such articles, but two teachers of one land-grant institution have contributed nearly 500 papers and articles to the engineering press during the past 25 years.

Special Researches by Institutions

The University of Illinois and the Iowa State College were the first land-grant colleges to demonstrate the value of organized research. At present there are 38 engineering experiment stations at land-grant institutions which report the following typical engineering contributions through research:

(1) Millions of dollars have been saved through the development of standard methods of testing all rigid types of sewer pipe, draintile, and culvert pipe. (2) Sanitary disposal of industrial wastes has contributed immeasurably to public health. (3) Economic and scientific studies of the design of highways have contributed to the proper use of the large funds which are being expended by the States and the United States Government for road construction. (4) Great savings have been produced due to studies which resulted in the utilization of industrial and agricultural wastes. (5) In several States the land-grant institutions designed and constructed the first sewage-disposal plant, which formed the basis for improved sanitation in an entire State. (6) Research on electrolytic iron, permalloy, and other new alloys have meant much to economic industial production. (7) Investigations of impact on railway bridges has resulted in improving specifications for bridge design in the United States, Canada, India, and Japan. (8) Researches on concrete, plain and reinforced, have developed a rational practice in their use and have improved its value as a building material. (9) Discovery of the causes of discoloration and efflorescence of limestone has meant much to the quarry industry. (10) Tests on locomotives, air brakes, brake shoes, draft gears, and other railway equipment have resulted in greater safety and lower costs to the public. (11) High-voltage research has made long-distance electric-power transmission practical and has given as by-products new methods for nitrogen fixation and for ozone manufacture. (12) Tests by the land-grant college engineering experiment stations have extended the market for low-grade coals, have resulted in more accurate grading of coals by mines, have reduced the smoke nuisance in many communities, have indicated the value of cleaning certain coals, and have reduced losses of fuels through spontaneous combustion by developing proper methods for storing. (13) Researches have developed new data by means of which the properties of steam and other vapors at great ranges of temperature and pressures may be calculated. (14) The science of heating homes has been developed through investigations in the laboratories of a land-grant engineering college. (15) Properties of building materials for different localities have been fixed by scientific tests. (16) The fatigue of metals and of concrete can be predicted as the result of investigations completed. (17) The modern carburetor is the result of researches in a laboratory of a land-grant engineering college. (18) Much of the present data on heat transfer is due to studies in land-grant college laboratories. (19) The science of foundations was aided through special investigations. (20) The ceramic industry of America was developed through studies at a land-grant engineering college. (21) Aid has

been given to the solution of water-supply and water-power problems in several States, and much new knowledge of water measurement was developed. (22) Data were secured as a basis for rational farm electrification in different States. (23) Timber testing has resulted in great benefits to the public. (24) Experiments have resulted in improved farm machinery and farm power. The modern farm tractor was standardized in the laboratories of a land-grant college; in fact, engineering staffs and former engineering students of land-grant colleges are mainly responsible for the development of the farm tractor of to-day. (25) Special machines and instruments have been perfected. Examples of these are the farm-gas tractor which was first conceived in the engineering laboratories of a land-grant institution, machines for material testing meters for the measurement of fluids, an electric oscillograph of large frequency range, high speed gas engine indicator, and other devices of value to the public.

Special Services to the United States Government, State Agencies, Municipalities, and Institutions

The land-grant institutions being supported mainly by funds appropriated by the States and by the United States Government, it is to be expected that these public institutions of higher learning render special service to the bureaus and departments. Questionnaires filled out by the institutions indicate that the land-grant engineering colleges are cooperating with the above agencies in the following ways:

United States Government bureaus.—The Bureau of Public Roads of the United States Department of Agriculture is cooperating with 19 institutions. Seven land-grant engineering colleges furnish laboratories to this bureau for special investigations and five report definite contributions by the United States Bureau of Public Roads for highway research.

Three institutions furnished laboratory facilities for the United States War Department. Two give special engineering instruction to officers of the United States Army. Through the Reserve Officers' Training Corps, the War Department is very helpful to the engineering colleges of all land-grant institutions as the military instruction supplements very effectively the technical engineering instruction.

One institution gives special advanced instruction to the graduates of the United States Naval Academy, while four report that they have been benefited from special equipment furnished by the United States Navy.

The Bureau of Standards of the United States Department of Commerce is very helpful to all engineering colleges through its publications, standardization of instruments, and advice; three institutions report researches in cooperation with this bureau.

The Bureau of Mines of the United States Department of Commerce is cooperating with nine land-grant engineering colleges in research of value to industry and mining.

The Office of Education of the United States Department of the Interior has received assistance from five land-grant engineering colleges in connection with surveys and has aided all engineering colleges of the country through special surveys and studies, statistical information, and general educational publications.

Only in rare cases has there been any cooperation with other bureaus of the United States Government. It seems that there should be greater cooperation between all of the land-grant engineering colleges and all the technical Federal bureaus. Unfortunately, neither the land-grant colleges nor the United States departments and bureaus seem to realize the opportunities for service to the public through greater cooperation of Government with the land-grant engineering colleges of the country.

National Research Council.—Twenty-three institutions report that they are cooperating with the National Research Council. In two cases definite research projects are supported by the council. In the other cases individual professors serve the council as representatives of engineering societies.

State departments.—Thirty land-grant institutions are performing valuable service to their State highway departments. In several colleges special road schools and conferences are held for the benefit of those who are responsible for the construction and maintenance of roads and streets. General advice by engineering staff members to engineers and officials of State highway departments is general. In a number of colleges the materials testing laboratories of the land-grant college are available for special investigations for the benefit of the State highway department. In a few cases the materials testing laboratory of the land-grant college is the official laboratory of the State highway commission. Thirty-two institutions report that aid is received from the highway departments of their respective States. In practically all cases, however, this aid was only nominal, such as assistance with programs for road schools which benefited mainly the State highway departments. Only in rare cases have the State highway departments contributed any funds directly to the land-grant college for research or for extension instruction. Employment of undergraduates during summer vacations has also been carried on to a very small extent. With the large sums of public funds which are being expended in each of the States for road building the cooperation between the State engineering college and the State highway departments should be more effective and general.

Twelve land-grant colleges are directly cooperating in a very general manner with the public utility regulating departments of their respective States. Again in the case of public service commissions the engineering staffs can be of great assistance. Public-service

commissions will also find it to their advantage to utilize engineering students and staff members during summers in connection with valuation problems. However, only in extreme cases should an egineering staff member be requested by a commission to give expert testimony.

Eight land-grant engineering colleges have definite cooperation with their State conservation departments, including the State geological survey; in one of these the professor of civil engineering is chief engineer of the State conservation department. Cooperation with the health, labor, or other State departments is found only in two States.

Several engineering colleges report that they have aided in connection with State legislation pertaining to safe boiler codes, water resources, highway laws, sanitation, building codes, engineers' license laws, architects' license laws, smoke prevention, and city-manager plans.

As is the case of the United States Government bureaus, insufficient cooperation exists between the State technical bureaus and the State-supported engineering colleges. The land-grant engineering colleges and the State departments should establish closer cooperative relations. Even the smallest land-grant engineering college can render effective service to State departments. The State technical departments, on the other hand, have a great opportunity to assist in the improvement of engineering education, particularly in the smaller land-grant colleges which are not located in industrial districts.

Aid to municipalities.—The communities in which land-grant institutions are located seldom make use of the talents of engineering staff members in connection with problems pertaining to city planning, water supply, sewage disposal, and street improvement. In rare cases engineering staff members are retained as consultants and as city engineers. Ordinarily such services are advisory in character and are rendered without compensation. Local communities should make greater use of engineering staff members. However, such services should not be given gratis as this practice is detrimental to consulting engineers.

Engineering staff members are quite generally used in advisory and consulting capacities in connection with the engineering problems of municipalities outside of the local community. These services are in connection with road building, bridge design, water supply, sanitation, smoke elmination, irrigation, drainage, and heating problems for schoolhouses and public buildings. One institution reports that the watershed for a town of 14,000 was protected by the proper location of filter beds. Several institutions report test of materials

at cost for municipalities. Other institutions report definite assistance to municipalities in connection with their water supplies, streets, buildings, and other technical problems.

Aid to State institutions.—The engineering colleges are contributing greatly in connection with the solution of the engineering problems of their institutions as indicated in a previous section of the report. In 32 cases members of the engineering staff act in an advisory capacity in connection with the design and operation of the institutional heating and power plant. In many instances the members of the engineering staff are also consulted with reference to buildings, grounds, athletic stadiums, sanitation, and æsthetic surroundings of the land-grant institution. In 12 smaller institutions it is customary for a member of the engineering staff to be responsible not only for the design and construction but also for the operation of the heating and power plant, and in some cases a professor or the dean of engineering is responsible for the entire physical plant of the institution.

In one case the land-grant engineering college made a survey of the physical plants of 20 State institutions at the request of the governor. In several the engineering staff members are consulted with reference to the physical plants of State institutions.

The practice of utilizing the talents of engineering staff members for consulting service to State institutions other than the land-grant colleges is favored only in exceptional cases, on account of objections offered by consulting engineers. Furthermore, this practice is detrimental to the main teaching and research duties of staff members.

Special services to industry and to the engineering profession.—Twelve land-grant engineering colleges report definite service to commercial organizations, 25 to manufacturing, 24 to building, 7 to ceramics, 16 to chemical, 14 to transportation, 26 to electric-power utilities, 19 to electric communication, 17 to gas utilities, 21 to water utilities, 11 to mines, 4 to petroleum interests, 6 to quarries, 4 to textile, and 2 to financial houses. These services were mainly through special instruction or research of value to industry.

In several States new industries were built up mainly through the assistance of the engineering staff members of land-grant colleges. The ceramics industry of Ohio is a definite example. The coal industries of two Middle West States were greatly aided through researches by the land-grant colleges of their States.

Nine engineering colleges indicate definite aid from commercial organizations, 33 from manufacturing, 13 from building, 10 from ceramic, 13 from chemical, 20 from transportation, 31 from electric-power companies, 26 from telephone and telegraph companies, 9 from gas utilities, 10 from water utilities, 9 from mines, 10 from

petroleum, 2 from quarries, 4 from textile, and 5 from financial houses. In the majority of cases gifts of equipment, special lectures, and supplementary teaching material were furnished by industry. Only in a very few institutions did industry cooperate with the engineering colleges by supplying funds for research.

Fifteen out of the twenty-five presidents of the Society for the Promotion of Engineering Education were teachers of land-grant colleges. A large proportion of the educators who were presidents of the engineering societies were also land-grant college teachers.

Chapter VIII.—Conclusions and Recommendations

(1) The definition of "Mechanic arts" during the time of the passage of the Morrill Land-Grant College Act and the custom of interpreting it place engineering as a required part of the program of land-grant institutions and coordinate with agriculture.

(2) The results secured through the land-grant college survey do not indicate that the land-grant institutions have developed a distinctive form of engineering education. At present the problems pertaining to undergraduate curricula, graduate study, teaching staff, and graduates are the same in all types of engineering colleges whether they are endowed polytechnic institutes, endowed universities, State universities, or separate land-grant colleges.

(3) The land-grant engineering college curricula are representative of the general tendencies in engineering education in America. Two-thirds of all the engineering students are enrolled in civil, electrical, and mechanical engineering. The engineering student devotes only about one-half of his time to technology and an equal amount to science, mathematics, and humanities. The quantitative requirement for graduation is 145 to 150 semester hours and the student carries about seven subjects at one time.

(4) Those in the land-grant college group, like all engineering colleges, are mainly undergraduate institutions. Inadequate recognition by industry of graduate degrees and lack of facilities in most institutions for advanced instruction are the two reasons for the small number of graduate students enrolled. The demand for graduates with the bachelor's degree in engineering exceeds the supply, but the stronger land-grant colleges should provide facilities for graduate study in engineering in order to train teachers and research engineers. Land-grant institutions located near large industries will also do well to consider the development of credit graduate courses for the benefit of techincally trained engineers employed in industry.

(5) Three-fourths of the land-grant engineering colleges section their freshman students in mathematics and English in accordance with their preparation. These institutions have also been the first in this country to develop orientation courses and special engineering problems for freshmen.

(6) While selective admission to the freshman year seems impractical for State-supported institutions, about one-third of the land-

grant engineering colleges favor a compulsory stopping place at the end of the sophomore year for those who lack qualifications to benefit by the advanced instruction of the upper two years.

(7) Only in one land-grant institution are students in the upper classes placed on their own resources and their instruction differentiated from that of the first and second years. This practice should become more general and greater recognition should also be given to superior scholarship.

(8) The junior colleges have thus far had little effect upon engineering colleges. However, land-grant institutions will ultimately be called upon to deal with such students and probably in larger numbers than is the case at present with those who hold degrees of bachelor of arts or bachelor of science from liberal arts colleges.

(9) A considerable number of land-grant engineering colleges have tried in the past to develop nondegree as well as degree curricula, but without success. Nearly all land-grant college engineering deans and the more prominent members of their staffs state that it is undesirable for an engineering college to offer both collegiate and noncollegiate resident instruction. Information now at hand indicates that it is usually undesirable for an engineering college to undertake 1-year or 2-year technical courses not leading to degrees upon the same campus with the degree curricula.

(10) Land-grant engineering colleges should cooperate to a greater extent with secondary schools and other agencies in their States which offer noncollegiate technical and trade instruction.

(11) Some land-grant engineering colleges may well offer in residence elementary courses in mechanics, electricity, power plants, machine design, surveying, metallurgy, and other technical subjects for the benefit of special students and for others who lack time or mathematical ability to benefit by the instruction of the regular engineering curricula.

(12) Short-term courses, conferences, special instruction in industrial centers, and elementary resident technical instruction are some of the methods of offering noncollegiate aid to industry which should be considered by all land-grant engineering colleges.

(13) Only about 225 students are enrolled in the curricula leading to degrees in agricultural engineering, and the small change in enrollment for a number of years raises the question as to whether it is necessary to have 20 land-grant institutions offer curricula in this field.

(14) While considerable encouragement is being given to younger teachers to continue their preparation, little systematic effort is being made to assist the younger teacher in mastering the technique of teaching. To raise the general standard of land-grant college en-

gineering teaching deans and heads of departments should assume greater responsibility in this matter.

(15) Better results may be obtained if the lines of authority and responsibility of engineering staff members are carefully defined. Separate engineering facilities with definite powers and responsibilities seem desirable in all except the very small land-grant instiutions.

(16) The name "agricultural college" as used to designate certain land-grant institutions seems to be detrimental to the interest of engineering alumni and staff members of such institutions. It is recommended that the name of such land-grant institutions be changed to "State college."

(17) It has been estimated that $30,000,000 per year are being expended in the United States for engineering education. The land-grant institutions in which are enrolled one-half of the total engineering students of this country are spending only slightly more than $10,000,000 per year, or only about one-third of the total. The governing boards of land-grant institutions must realize that inadequate support for engineering education will necessarily affect unfavorably the quality of instruction and the other services of these colleges.

(18) Except in a very few institutions no encouragement is given to the engineering staff to build up research or extension. Both these types of work should be emphasized to a much greater extent than they are at present.

(19) Cooperation between the land-grant engineering colleges and the State and United States Government departments should be improved. The land-grant engineering colleges have been most helpful in nearly all cases in connection with the highway programs of their States, but the State highway departments have rarely reciprocated. Effective cooperation exists between a considerable number of land-grant engineering colleges and the United States Bureau of Public Roads, the United States Bureau of Standards, the United States Office of Education, and the United States Bureau of Mines. There is much room, however, for closer contacts between the land-grant engineering colleges and all of the technical bureaus of the United States Government.

(20) The land-grant engineering colleges are cooperating to an increasing extent with the industries and utilities of their localities. Eight of these institutions are solving industrial problems which are national in scope, are receiving considerable sums for cooperative research, are attracting large numbers of students from States other than their own, and are recognized as research and training centers in certain engineering fields. With proper support and encouragement this number can be increased.

PART XI.—HOME ECONOMICS

Chapter I.—Objectives

There is good reason to believe that home economics will make more rapid progress in defining its objectives and in creating the means for their attainment than was the case of some of the other more recent special fields of higher education. The basis of this belief may be discovered in tendencies that are apparent in the statements of land-grant college home economics objectives and in the discussions that constitute a part of the Proceedings of the Association of Land-Grant Colleges and Universities. From these sources it seems that a definition of objectives is being evolved in terms of a type of college education rather than in terms of specific skills and subject-matter information.

Home economics personnel recognize more fully perhaps than does the remainder of the academic world the apparently disorderly conditions that have existed in their field. They have attempted most seriously and intelligently to regularize and standardize their objectives and the means used to attain these objectives without abandoning faith that home economics provides a new and creative instrument to higher education. Their task involves the definition and segregation of an area of educational endeavor.

As compared with the traditional fields established in the higher educational world, they have had a very short period in which to work out their problems. By 1900 only nine land-grant institutions, Iowa State College, Kansas State Agricultural College, South Dakota State College, Oregon Agricultural College, Agricultural College of Utah, Colorado Agricultural College, Michigan State College, Ohio State University, and Montana State College, had courses in "domestic economy." Work in home economics in 33 of the institutions has been started since that date. This is a very brief time in which to isolate and to create subject matter, to devise organizations, train staffs, and formulate purposes in terms of a college standard that has itself been revolutionized during the past 15 years.

The day has long passed when any single and specific area of learning can maintain a monopolistic claim to provide the only knowledge and medium through which higher education may be

acquired. The ancient languages and mathematics had to make room for scientific education and, in turn, pure science has, during the past two generations tended to break down into a series of specialties that gain life and vigor by reason of appeal to interest in the application of the scientific method to various life activities. Thus colleges of engineering, agriculture, education, and of commerce and business have developed as respected faculties of the colleges and universities.

Home economics objectives described for the purposes of this survey indicate quite clearly that in the minds of many leaders in this field, home economics is conceived in terms of utilization of another area of human interest and activity to develop the attitudes and abilities that are supposed to result from college education. This viewpoint makes home handicraft skills incidental to and mere instruments of a wider purpose. The accomplishment of the home-economics mission can not, therefore, be measured by comparison of the cooking and sewing of its graduates with the facility in similar accomplishments acquired by other persons in household practice. Important as is ability to manage the material and social affairs and relationships of the home, the conception of home economics as a medium and incentive for college education merely takes advantage of the interests and family ideals of women to induce them to acquire the social and scientific attitudes that characterize any well-educated person. Even the gainful occupations for which preparation is offered are regarded to a considerable degree not as ends in themselves, but as means through which the individual becomes a member of the intellectual classes. When home activities and relationships are thus regarded as a medium that may be utilized to provide a college education, selection of subject matter, development of skills, and methods of teaching are controlled by quite different principles than would be the case in trade training or education to a station in family life.

However, a national survey of home economics in the land-grant colleges and universities of the United States will not present a true picture of the status of home economics in these institutions by recording the interpretations of the most advanced home economic leaders and the embodiment of these interpretations in the methods and curricula of a few land-grant colleges. The judgments of the entire group of college home economics staffs in regard to the objectives of their work must be examined critically and an attempt made to relate these judgments to inferences that may be drawn from the organizations set up in the colleges for the administration of home-economics instruction, from the character of the staff, from the courses and curricula offered, and from the student product.

Aims and Objectives

The responsible heads of home economics work in 43 land-grant colleges described their conceptions of the objectives and aims of college home economics for use in connection with this survey. It is impossible to arrange this group of statements in systematic and logical form and to report consensus of opinion upon the basis of clearly defined expressions of objectives. Nevertheless it is possible to derive from the statements four main tendencies or conceptions in interpretation of purposes. Somewhat roughly these objectives may be designated as (1) the development of handicraft skill in the operation of home keeping; (2) the development of home managers capable of handling the labor, the financing, and the social relationships that arise in the family unit; (3) preparation for specific gainful employment; and (4) utilization of interest in home and family activities and relationships as a medium through which scientific and social education may be provided in combination upon the college level.

Upon the basis of the statements of objectives reported for the purposes of this survey, it seems that two or more of these purposes may, and do quite frequently, exist side by side in a single institution in more or less contradictory and illogical relationship.

The handicraft objective.—No institution admits to-day that the major objective of its home economics work is that of developing handicraft skill in the operations of home-keeping. Long after creation of good cooks, home dressmakers, and housekeepers by teaching skill in household operations and by imparting rule of thumb information is recognized as an inadequate objective for college home economics the practices derived from this conception may survive and the objective itself persist in an obscured form. Most frequently this obscurity arises from the addition of well-recognized and respectable academic requirements that bear an attenuated relationship to subject matter prescribed to attain the old objective. Thus, since cooking involves chemical changes, since pattern making requires knowledge of measurements, curves, and irregular volumes, and since a house must be provided for housekeeping, it would easily be possible to attain academic standing for home economics by insisting that science be taken through organic chemistry, that mathematics be pursued through solid trigonometry, and that the elements of architecture should precede the course in house furnishing. Yet the cooking, sewing, and household work might be modified in only the slightest degree by all these additions and the essentially home economics instruction might remain upon the same old handicraft level. Home economics leaders fully recognize this fact and are mak-

ing considerable progress toward integrating abstract science and home economics application. The fact that the contributing sciences are highly departmentalized for purposes other than those of use to the divisions of application such as education, agriculture, engineering, and home economics, frequently makes such adaptation difficult. The extent to which integration of the science and the application of home economics has proceeded must be sought in the methods used and courses offered rather than in statements of objectives by college home economics teachers.

The family unit objective.—Examination of the statements of objectives by home economics departments shows that more than two-thirds of the statements are determined by desire to provide education that will serve the purposes revealed by more or less conscious and thorough-going analysis of the family. It is significant to note the emphasis given to development of attitudes within and toward the family and home as contrasted with the emphasis upon isolated, specialized bits of information and skills that characterized the handicraft objective. Assuming that the activities of the home provide a worth-while area of educational effort the handicraft objective was derived by analysis of the very limited and somewhat obvious manipulative processes that go on in the normal household. The family unit objective, on the other hand, is based upon recognition of wider and more varied home activities, but still depends for validity upon the adequacy of the activity analysis process as a means for determining the objectives of home economics instruction. Thus, the handicraft objective is subordinated to objectives derived from analysis of the home in its economic aspects, of the family as a social unit, and of the family as an element in larger social groupings.

The home economics objectives in land-grant colleges that center about home and family concepts are for the most part statements of the purposes of instruction based upon analysis of a variety of family activities and relationships. Thus we have "better understanding of child training and more intelligent use of family finance," "application of sciences and arts to problems of the household," "the place of the home in good citizenship building." The family unit objective in home economics instruction is undoubtedly a fruitful and rich concept and affords opportunity for wide and serious intellectual effort. Whether the statement of this objective is merely a theoretical and pious hope or whether it is a real and practical purpose can be determined only by examination of courses and curricula offered as means of attaining this objective.

This discussion of the family unit objective would be inadequate if attention were not called to some of the dangers and deficiencies that arise from too exclusive dependence for determination of pur-

poses upon the basis of analysis of family activities and relationships. The family is an extremely complex organization that involves a great number of interests, forces, and relationships within its own circle. When the contacts of this circle with other social groupings are also considered the complexity and instability of data are tremendously increased. Objectives of instruction based upon analysis of the elements and factors that concern the family unit can have only such validity as is derived from the soundness and completeness of the analysis itself.

The statements of home economics objectives submitted by the land-grant colleges quite frequently show an overemphasis upon one or another element of the family or home that distorts the value of the family unit objective for undergraduate home economics instruction. Since the activity and relationship analysis of the family is never completed, new and outstanding results of investigation in one phase very naturally tend to be reflected in at least temporary overemphasis in home economics instruction and purposes. One example of such overemphasis is apparent in a large number of the statements of objectives. During recent years remarkable progress has been made in the scientific study of the physiology and psychology of young children. This fact, coupled with an almost universal interest in and love of babies, has apparently led to frequent definitions of college home economics objectives in terms that seem to make child care, child psychology, and child growth the chief concern of family life. The child-centered family like the child-centered school is as much a distortion of social and economic conceptions appropriate to modern life as would be an ancestor-centered family. The importance and value of child study as one element of the undergraduate home economics program is fully recognized. Considerable judgment is necessary, however, if this element is kept in proper relationship to other phases of family relationships. Similar excessive preoccupation with special phases derived from analysis of family and home interests and activities might be cited, but this serves to indicate an important weakness when objectives and curricula to accomplish objectives are based upon incomplete analysis and stop short of synthesis of various elements derived from such analysis.

No one questions the importance of the family and home in the social organization. No one probably would deny that a corresponding obligation is laid upon home economics education to provide educational service based upon analysis of the activities that center in the family. At the same time it may be doubted whether such analysis can provide a definition of objectives adequate for home

economics instruction under modern social conditions. Most men live very rich and active lives outside their family relationships; women are increasingly seeking and finding similar interests that are much more closely related to other institutional and social groupings than to the homes that they maintain. This does not mean less interest in and love of home, but is simply realization of the wider and richer individual living that has come to women largely through better and higher educational opportunities. To some members of both sexes the home and the family provide full and satisfying realization of personal living. When this is not the case there would seem to be no more reason why the other individual interests and abilities of woman should be submerged in the family unit than that the wide economic and human interests of men should be subordinated or smothered under a single important social relationship. Under phrasing that is frequently obscure and uncertain the statements of objectives submitted by home economics departments in land-grant colleges show clearly that this conception is playing an increasingly important part in the development of college home economics education.

Remunerative employment objectives.—All of the 43 institutions that describe their home economics objectives include in one form or another statements of objectives in terms of gainful employment. Twelve list preparation for one or more types of such employment among the primary objectives of their home economics instruction. The more important employments mentioned for which preparation is offered are in descending order of frequency, teaching, dietetics, extension service, institutional management and research, and, among the employments mentioned only occasionally, social service, public-health service, nursing, journalism, and business concerned with the buying, selling, or servicing of products used in homes.

It should be fairly obvious that these employment objectives are not fully determined and can not be determined by analysis of family and home activity and relationships. All are more or less closely related to family and home interests but the specific employment in each case involves and is related more closely to other social and economic groupings. Attainment of gainful employment objectives must be determined in each of these cases by adopting and relating specific phases of strictly home economics instruction to other bodies of fact and activity centered about social agencies that are not formed upon the basis of the family unit. Examination of curricula reported in another section of this survey of home economics in the land-grant colleges will consider the vocational curricula from this standpoint.

The objective of combined scientific and social education.—Real values and legitimate purposes are involved in the definitions of the

objectives of college home economics in terms of handicraft, home life, and vocation. Yet definitions upon all these bases as in other "applied sciences" are subject to criticism and give rise to confusion, misunderstanding, apparent conflict, and obvious inconsistency of practice.

The most frequent complaint and criticism in regard to the areas of specialized education that have scientific or vocational objectives is that the liberal and social elements of education are neglected or do not function. This criticism is very seriously directed against teacher training, engineering, agricultural and business education, and is deplored by the leaders in each of these fields. In the same way the college of liberal arts is freely criticized because it is claimed that it leads nowhere but to academic and impractical interest. In view of the criticisms of these types of education it is extremely significant that the statements of objectives by home economics leaders in the land-grant colleges reveal an unmistakable determination that home economics shall combine practical, scientific, social, and cultural elements in such fashion that they shall be integrated in the consciousness and attitudes of the individual student.

To define the objective of college home economics that is directed to this end demands a degree of predictive hazard, but upon the basis of survey reports this objective may be described as one that attempts to combine scientific and social education by utilizing as a medium and incentive the activities and relationships that arise from home and family life.

This statement is not so clearly and so definitely stated by any of the reports from the home economics departments in land-grant colleges, but represents an attempt to embody in brief form a variety of partial statements of ideals and purposes that clearly tend toward some such conception of objectives. It will be noted that the definition consists of three elements: First, the combination of social and scientific education; second, dependence upon the activities and relationships of the family as a source of subject matter; and third, utilization of this subject matter as a medium and incentive for college education.

In so far as this is a just statement of a definite home economics objective it requires solution of practical problems and experimental procedures that may well be of greater significance in higher education than the mere segregation of another area of educational endeavor.

The processes that will be required if this problem is to be solved in the field of home economics will result in the creation of new subject matter, in new treatment of old subjects and in daring experimental combinations of methods and courses. These things can not

be done in a day. Criticism of home economics upon the score of failure to accomplish this task in the immediate future will be justified only if the problems are not earnestly attacked, if attainment of academic respectability is substituted for constructive accomplishment or if the rank and file fail to follow progressive leadership in adherence to purposes of this character.

Statements of home economics objectives tend to adhere to dependence upon home activities and family relationships for subject matter even in those cases in which objectives are directly those of gainful employment. Without entering into the question of whether home economics teacher preparation, training of dieticians, business women, and institutional managers are primarily home economics functions or belong to merely related areas, insistence by home economics staffs that these fields be centered in home interest emphasized the fact that in their opinion the home does provide an extremely rich field of subject-matter content. It must be admitted, however, that much work remains to be done if this material is to be segregated and utilized. In spite of the biological, social, and economic importance of the family, there has been relatively little thorough study devoted to it under modern conditions. In other words, the field has not been thoroughly explored although the work that has been done makes it evident that the family is an inexhaustible mine of indefinite extent. The demands of home economics leaders for funds to carry on exploratory investigation in this field make it perfectly evident that they are fully aware of the need for thorough study.

Subsequent discussion of home economics organization, staff, and curricula will attempt to relate them, in so far as possible, to the conception of college home economics as a form of combined social and scientific education through the medium of home activities and relationships.

Chapter II.—Organization

This survey holds no brief for any specific form or type of college home economics organization. Nevertheless the organization of home economics in the institutions tends to reflect and to determine to a considerable degree the conceptions of home economics objectives that are dominant in the land-grant colleges as a group. This relationship between organization and conception of home economics is especially valid as a measure of institutional and administrative attitudes; it does not so accurately indicate the objectives of the home economics staffs that are compelled to adapt their work to organizations over which they have little control. In an institution the organization of home economics may be a survival which is inappropriate to the present, more highly developed purposes of the home economics personnel. Or it may be borrowed ready-made from another institution which has made great progress in definition and attainment of home economics objectives and may, therefore, conceal very vague and limited purposes. Nevertheless, a rather high degree of correlation may be expected between types of institutional objectives and forms of organization when the entire group of home economics units in land-grant colleges is considered.

This is true both with respect to the place of home economics in the institutional organization and with respect to the nature of the internal organization of the home economics unit itself. For convenience of presentation discussion will follow this classification and deal first with the place of the home economics unit in the institution; second, with the internal organization of the home economics unit; and third, with the relationships that arise from the position of home economics in the institutions and from the nature of the internal organization of home economics units.

Institutional Organization

Examination of the formal position occupied by home economics in the land-grant colleges shows four types of assignment that reflect the following four institutional conceptions of home economics objectives: (1) Assignment of home economics to the college of arts and sciences; (2) assignment to the college of education;

(3) assignment to the college of agriculture; and (4) assignment to a position coordinate with the traditional major divisions in university organization. Each of these allocations will be considered in turn.

When home economics in college is thought of merely or primarily as a means whereby special subjects may be offered that will attract girls and appeal to housekeeping mothers the work may be appropriately assigned to almost any college or major division of the institution whose own objectives are not so specific as to render a home economics addition entirely irrelevant. Because of the general purposes of the college of arts and sciences this major division is frequently the one called upon to provide a berth for the new subject. Home economics is assigned to arts and sciences in 5 of the 41 land-grant institutions that report on this phase of the home economics inquiry. As has been indicated, retention of home economics in the college of arts and sciences does not necessarily mean that the work in a specific institution retains the vague objectives that probably led to its original allocation to this major division. The initial scattered work may develop into a curriculum. It may be organized into a department in the college comparable to the departments of history, English, and botany. Such assignment tends to restrict the development of new and wider home economics objectives since administrative control is centered in an educational position that is unlikely to devote a large degree of vigor and initiative to the special development of this field.

When it is regarded as the function of home economics to provide training for gainful employment, it is a logical procedure to assign the work to the major institutional division that is most closely related to the vocation in which the largest number of women find employment. Hence we find home economics curricula or departments administered by schools of education in 11 institutions. However, as women in increasing numbers enter occupations other than teaching it becomes necessary for the school of education to administer home economics preparation for employments quite inappropriate to its own educational objectives or for new home economics units to be established in other more suitable major divisions of the institution. Thus preparation for employment as nutrition or dietetics specialists may be assigned to the college of agriculture as a unit that is concerned with problems that underlie both human and animal feeding. As the variety of unemployments increases, however, this method of assignment becomes awkward to apply, and development of work appropriate to vocational purposes tends to be restricted until such time as an important division of home economics is developed to which major responsibility may be given.

The allotment of home economics to the school of education requires some further discussion. If all home economics work is conducted by this major division, the practice is not in harmony with the relations that exist between other subject-matter fields and the school of education. In other fields the school of education depends upon the subject-matter departments—botany, English, history, etc.—for training in subject matter; its function is that of providing professional knowledge and attitudes to be applied in actual teaching of a variety of subjects. It would seem, therefore, that if this common form of organization is sound, the same principle of organization should apply in the case of home economics. In other words, assignment of the entire home economics unit to the school of education is justified only if the sole home economics objective of the institution is that of teacher preparation. On the other hand it is just as much out of harmony with accepted principles of institutional organization to assign home economics teacher training exclusively to a major division other than the school of education when a well-developed school of education exists in the institution.

In 21 of the 41 institutions reporting, home economics education or teacher training is shown to be organized either entirely in or jointly with divisions of education. In 12 the home economics teacher-training course or curriculum is located in a division of education: University of Arkansas, University of California (at Berkeley and Los Angeles), Connecticut Agricultural College, University of Illinois, Purdue University, University of Kentucky, University of Maryland, University of Missouri, University of Nevada, University of New Hampshire, Pennsylvania State College, and the University of Wyoming. In six it is organized jointly in the divisions of home economics and education. These are Colorado Agricultural College, University of Minnesota, Oregon Agricultural College, Rhode Island State College, Agricultural College of Utah, and State College of Washington. In three it is organized jointly in divisions of agriculture and education: Ohio State University, West Virginia University, and the University of Wisconsin. In eight it is in the division of agriculture: University of Arizona, Georgia State College of Agriculture, University of Maine, University of Nebraska, Cornell University, University of Tennessee, University of Vermont, and Virginia Agricultural and Mechanical College. In eight others it is in the division of home economics: Alabama Polytechnic Institute, University of Delaware, Iowa State College, Michigan State College, North Dakota Agricultural College, Oklahoma Agricultural and Mechanical College, Louisiana State University, and Rutgers University. In three it is in the division of letters and science, or general science. They are University of Hawaii, University of Idaho, and Kansas State Agricultural College. In one, Montana State College, it is in the division of household and industrial arts.

Practice in the land-grant colleges with reference to the relationships that the home economics units bear to home economics teacher training shows considerable variety and indicates frequent departure from sound principles of organization. Present conditions give rise to unfortunate situations such as that reported by 34 institutions in which members of the resident home economics staff are responsible to the titular head of the home economics unit. In 11 of these institutions this situation is due to the fact that home economics subject-matter teachers are responsible to the head of the department or

school of education rather than to the head of their own subject-matter field.

Of the 34 institutions 17 report members of the home economics staff responsible for home economics instruction to some one other than the head of the home economics unit; 19 report such responsibility with reference to housing and feeding of students; and report that budgetary responsibility is involved and that research is concerned. In only one of 19 institutions reporting on the point is the State home demonstration leader responsible jointly to the director of Smith-Lever extension and to the resident home economics department; in the other instances the home economics department is not concerned. Further, 13 institutions report Smith-Lever extension specialists as having no responsibility and apparently no relationship to the head of resident home economics work. In two institutions the State supervisor of home economics education is a member of the home economics staff, but in neither case is she in any way responsible to the head of the home economics unit.

Failure to articulate all home economics residence instruction, extension, and research through the head of home economics resident instruction is likely to result in undesirable duplication and a variety of standards within the institution. Further resident work should derive material benefits from connection with Smith-Lever extension and experiment station research and the resident home economics staff should be able to contribute to extension and research programs. If for any reason leadership of all aspects of institutional home economics activities can not be exercised by the head of the home economics unit and if the home economics staff is not able and prepared to participate effectively it would seem probable that the character of home economics personnel is not all that it should be or that defective organization is imposing an undesirable handicap upon the home economics staff.

When home economics is regarded as a means of developing home managers prepared to deal with the various tasks of housekeeping and homemaking these matters are likely to be interpreted by the institutional authorities that determine creation and allocation of new units pretty largely in terms of food and clothing. Hence it seems entirely reasonable to them to assign home economics work to the major division of the institution that is concerned with foods and with the production of wool and cotton, that is to the division of agriculture. This reasoning was probably in many instances supported by the fact that when home economics units were established the majority of homes were rural; in some States they still are and in all they constitute a large proportion of the homes. Further, because the college of agriculture contains the Smith-Lever extension service and the experiment station, both of which carry on home economics work, this division of the institution seemed adapted to resident instruction in home economics. When home economics is assigned to the college of agriculture the close relationship that home economics extension under Smith-Lever services and the agricultural experiment station under the provisions of the Purnell Act,

should have with resident instruction may be facilitated. We find, therefore, that home economics curricula are set up in the college of agriculture in 3 institutions and in departments in 15.

When home economics instruction is conceived in terms of utilizing subject matter derived from home and family relationships as a medium for a combined humanistic and scientific college education it is entirely logical to set up an independent major division of home economics coordinate with the other schools and colleges of the institution. In 19 instances such organizations are reported by the home economics units of the land-grant institutions. In this connection it is interesting to note that the home economics work of eight of these institutions was originally assigned to the college of agriculture; more than one-third of the home economics units originally placed in the college of agriculture have become major divisions of home economics. To this number should probably be added another division of home economics that is connected with the college of agriculture for administrative purposes only. It appears that the affiliation of home economics work with the college of agriculture has provided opportunity in many instances for rather free development. Further evidence also points in this direction, since many of the home economics units still in colleges of agriculture are well developed and exercise a degree of autonomy far in excess of the self-control permitted to other subject-matter departments.

The tendency to desire organization as independent divisions is shown by the fact that 12 of the home economics units that are not organized as major divisions desire to become independent schools or colleges within their institutions. Eight of the home economics units that express this desire state, however, that they do not regard their present organization affiliation as especially unsatisfactory. It may be, therefore, that the wish to make the home economics unit an independent one is in some instances a conventional notion of what is needed rather than an indication that home economics objectives are such as to require separate control. It should be fairly obvious that "freedom" and "independence" might be unsatisfactory both for home economics and for the institutions when the actual local situation and home economics preparation to exercise the full responsibilities of independent major division are not sufficiently weighed. In what ways and under what circumstances an independent administrative unit for home economics can excel in the accomplishment of the objectives of home economics must be defined and demonstrated in terms of institutional situations and home economics resources before it can be accepted and adopted as a standard by any individual land-grant organization.

The four assignments of the home economics units described are typical. It frequently happens, however, that in a single institution the home economics work directed to the attainment of different purposes may be assigned to a number of more or less appropriate major divisions. Thus home economics work may be conducted in a single institution by as many as three different schools or colleges—arts and sciences, education, and agriculture—although the dual situation, agriculture and education, is more common.

One test of the actual position of home economics in institutional organization is the line of administrative responsibility that connects the home economics unit with the chief administrative officer of the institution. If the home economics unit deals directly with the president, a considerable degree of administrative autonomy is implied. On the other hand when home economics matters must pass through a number of subordinate administrative heads before reaching the president it is relatively safe to assume that the immediate heads of home economics work may frequently be compelled to modify their objectives and activities in accordance with policies and attitudes determined primarily upon grounds other than those of development of home economics purposes. However, the validity of such reasoning is considerably modified for the land-grant institutions because approximately half of these institutions are State universities and the remainder separate land-grant colleges. Of the 17 institutions in which the home economics unit reports directly to the president only 3 are State universities and of the 20 institutions in which the home economics unit is administratively responsible through the dean of a major division, usually the college of agriculture, only 3 are separate land-grant colleges and in 1 of these cases (Pennsylvania State College) the institution is in effect the State university. In view of the fact that the dean of the college of agriculture in a State university occupies a position in many ways, although not exactly, comparable to that of the president of an agricultural college, it would seem that a considerable number of the home economics units have immediate access to administrative officers of extensive authority.

It is probable that the interposition of a dean between the home economics unit and final administrative authority works quite as frequently to the advantage of the home economics unit as to its disadvantage. This is especially likely to be the case when the intermediate officer is the dean of the college of agriculture who is responsible for the Smith-Lever extension service and the agricul-

tural experiment station which both carry on home economics work. In a properly administered organization the home economics unit will gain strength from the relationships with extension and research that should be facilitated through the dean of agriculture. Detailed examination by subsequent pages of this report of the responsibility and powers of the home economics unit in selection of staff, management of the budget, and determination of offerings should reveal whether in these important functions home economics is unduly restricted by the existing lines of administrative responsibility.

The official relationships of home economics to the registrar's office might well be indicative of the place of the unit in the institutional organization. However, the facts as shown by institutional reports reveal little that is of special significance. Although the home economics unit and the registrar's office are in the great majority of cases jointly concerned with evaluation and transfer of credits and with the recommendation and approval of substitution of courses these relationships are normally those that exist between a subject-matter department and the institutional office of record.

Quite apart from formal organization the institutional estimate of the home economics unit is revealed to a considerable degree by the extent to which the unit is represented upon ruling bodies and institutional committees.

The facts concerning these relationships are, therefore, presented. In 34 of the 39 institutions reporting on this point, home economics has representation upon the faculty bodies of the institutions. In four of the cases, however, the head of the home economics unit apparently has no power to vote in such bodies. Membership is quite frequently rather strictly limited by institutional rank. In only one institution are all ranks admitted and in one other all ranks are admitted with the condition that instructors must first serve for a definite term in the institution. Four report that all members of the home economics staff with the rank of assistant professor or above sit upon the faculty ruling body. Apparently in the remainder of the institutions admission is limited to the higher academic ranks.

Forty-two institutions submitted reports concerning the representation of home economics staff members upon general faculty committees. These statements are summarized in Table 1.

TABLE 1.—*Membership of home economics staff on general faculty committees, 42 institutions reporting*

Committee	Number institutions reporting	Head chairman	Head member	Other than head	Other staff member chairman
1	2	3	4	5	6
Catalogue	19	1	16	2	0
Curriculum	21	1	18	2	0
Health	8	0	4	4	0
Housing and feeding of students	14	2	8	4	0
Publications	10	1	5	4	0
Research	14	1	11	2	0
Social life	19	2	10	6	1

Membership in the governing faculty bodies of the institutions gives little indication that in the land-grant colleges the staffs of home economics units have attained a parity with the older, better-developed units of the institutions. Representation is so limited that a query may well be raised concerning the reasons for this situation. The facts that may serve as a basis of judgment in regard to this matter will be presented in the section of this report that deals with the home economics staff.

Representation of college home economics teachers upon institutional standing committees is significant and deserves some comment. In view of a quite common academic conception of home economics and because of the nature of home economics subject matter it would be natural to expect that the largest number of institutions would place home economics staff members on committees concerned with housing and feeding, social life, and health. More than a third of the institutions do, in accord with this expectation, enlist home economics representation upon the committees dealing with housing, feeding, and social life. But the table indicates a much more significant practice than assignment to these committees. More institutions include home economics members upon the curriculum committee than upon any other committee. Faculty work upon the curriculum is one of the most difficult and important matters dealt with by means of committee consideration. That home economics should be represented so frequently in this work is at least testimony by a large number of institutions that the home economics staff is recognized as having a contribution to make. Members of the survey staff who have attended meetings of the home economics section of the Association of Land-Grant Colleges and Universities believe that the earnest and informed discussion of curriculum matters and the proportion of the time given to consideration of curricular problems at these meetings indicate ability to make contributions of great

value to the institutional curriculum committees upon which home economics staffs are represented.

While the catalogue and publication committees are less important than the curriculum committee, the means used to inform the public of the work of the institutions are of primary concern. More catalogues committees include home economics representatives than is the case with any committee other than the curriculum and social life committees.

It is significant, too, in view of the quite frequent judgment that home economics staffs have not yet developed a considerable degree of research ability, that in one-third of the institutions reporting home economics staff members are represented upon research committees. In one case the head of home economics is chairman of the research committee. There is no reason to believe that membership on this committee has been conceded upon any grounds other than ability to contribute to the development and maintenance of high standards of research in the institutions concerned.

Criticism may be directed against the basis that sometimes determines home economics connection with institutional social activities. Too often the part of home economics in social life is conceived in terms of furnishing refreshments for committees, dignitaries, and parties. Its standings and offerings are judged by the palatability of the refreshments. This notion is a survival of the institutional conception that the main objective of home economics is the attainment of skill in cooking.

In so far as home economics representation upon general faculty committees is a valid basis for judgment of the position of home economics in the institutions serious questions may be raised with reference to the situation in four institutions which report no home economics representation upon such committees. Is this due to administrative prejudice? Is home economics in these institutions so undeveloped as to have no organization position which justified faculty committee membership? Or is the fact accounted for by the lack of home economics leadership and by the character of the training and abilities of the home economics staff? These questions can be answered only upon the basis of critical judgment of individual institutions, which is outside the province of a national survey.

Internal Organization

The facilities and the restrictions that are due to the formal position of home economics in the institutional organization serve to promote or to limit definition and attainment of objectives. Nevertheless the internal organization of the home economics unit itself may to a considerable degree counteract apparent favorable or un-

favorable institutional allocation. Thus, while it may be expected that the suitability of the internal organization to the accomplishment of specific objectives will to some extent run parallel to institutional assignment for the promotion of similar objectives, the actual development of home economics may proceed or be retarded under any of the positions to which it may be assigned in the institution. Internal organization is, of course, dependent to a large degree upon the same authorities that determine the general place that home economics occupies in the higher educational program, but aggressive and competent home economics leadership or sympathetic administrative impetus may secure for home economics an organization of such size and of such character as to attain very advanced objectives even though its apparent position in the organization as a whole indicates restricted purposes. Examination of the internal organization of the home economics unit for undergraduate instruction should provide, therefore, some further light upon the questions of institutional objectives in home economics work and upon the effectiveness of the means provided to home economics for meeting these objectives.

Study of the groupings of staff and of subject matter that constitute the departments of the home economics organization involves many difficulties of interpretation.

The survey requested from each institution two entirely distinct records of the list of departments and of the number of staff members in each department. In accordance with the listing furnished by one of these records it appears that in 33 institutions, five of the home economics units have more departments than they have staff members. This is a curious situation difficult to explain under any ordinary interpretation of the meaning of a department. A department implies a definite and distinct organization for conduct of instruction with a responsible head in each case. Multiplication of departments until the number is so great as to require one person to serve as the head of two or more departments is obviously an unwarranted and somewhat deceptive practice. The same record reveals that in six institutions there was but one staff member for each of the departments listed. This also implies an excessive departmentalization since it is fairly obvious that a well-developed program will require at least two persons in the two or three basic departments before the institution is justified in adding other highly specialized departments. However, it is by no means certain that this apparent condition is not due to confusion between curricula and departments by the home economics staffs that furnished this record.

Examination of the second set of records of departments and staffs shows that of 45 institutions reporting, only 15 list home economics as a major division. Of the 15, five institutions either do not pro-

vide definite subdivisions in the home economics unit or failed to record the fact if departments are actually organized. Of the remaining 10 institutions 4 show 3 departments; 3 show 4 departments; 2 show 6: and 1 shows 7. In none of these cases is the number of staff less than the number of departments, but of the 43 departments 30 have heads with the appropriate rank of professor; and others have one or more persons of the rank of professor; and others have one or more persons of the rank of associate professor who may act as heads of the departments; 5 have no members of rank suitable to department leadership. It would appear from both records, therefore, that in a number of the land-grant colleges multiplication of departments has proceeded at a rate not justified by the size of staff and by the academic ranking given to staff members. The significance of this condition with reference to advanced home economics objectives lies in the doubt aroused as to whether the actual organization is in many instances as suitable to the attainment of theoretical purposes as the paper organization would indicate.

Turning from the rather unsatisfactory evidence furnished by numbers of departments and by numbers and ranks of staff assigned thereto, we find somewhat more reliable data in regard to the lines along which departmentalization is determined. Whether these reports do or do not represent actual attainment the statements indicate the trend. Of 33 institutions considered 31 report departments of textiles and clothing; 30 departments of food and nutrition; 12 departments of extension methods; 1 each of physical education and hotel management. These departments indicate by their titles with considerable precision the subject-matter fields with which they deal. It will be noted that the departments that occur with greatest frequency, textiles and clothing and foods and nutrition, are concerned with home activities that may be treated merely upon the level of handicraft skills or that may be presented with objectives more appropriate to higher education.

The remaining departments that occur with greatest frequency are general home economics (twenty-three times), home management (twenty-one times), applied arts and institutional management (each nineteen times), family life (fifteen times). In no one of these instances does the title of the department indicate with any degree of precision the specific subject matter that is appropriate to such a department. Examination of the content of courses and offerings in each of these departments shows the widest diversity of practice and little evidence that similarity of content has been obtained through conventionalized understanding or definition of the field that home-economics personnel assign to these departments.

This apparent failure to standardize the meaning of departmental terminology indicates the need for further study and development of the areas of knowledge that are intended to be included under the titles now used in order that clarity may be attained and common purposes served by analysis and realignment of subject-matter material. As presented in the reports received from the institutions, the internal organization of home economics units throws very little light upon the suitability of the existing organization to the attainment of any specific type of objective. Internal organization needs readjustment for the definite purpose of adapting organization machinery to the accomplishment of very well-defined purposes.

Relationships of Home Economics

The relationships of the home economics unit to other divisions and departments of the land-grant colleges are such that the subject is perhaps more closely allied to home economics courses and curricula than to organization. Yet the interchange of services that exists is of considerable importance in estimating the position that home economics occupies in these institutions. Thirty institutions furnished information concerning courses and services given by home economics for other divisions, and to home economics by other departments. It is interesting that home economics conducts service courses for the medical and nursing divisions in 14 institutions; for the extension service in 11; for agriculture in 7; and for units of arts and sciences in 19. In four institutions home economics conducts service work for the college of engineering. This is excellent evidence that home economics is establishing its subject-matter field in the esteem of other areas of college instruction, although such service by home economics is considerably less than it receives. Perhaps the fact that home economics is thus indebted to other divisions for service work is in part due to its combined social and scientific objectives as largely as to its relatively undeveloped status.

That this interest is not content with or compelled to mere acceptance of courses conducted by other divisions without reference to home economics purposes is evident from the number of instances in which the home economics unit is consulted by other divisions concerning the content of courses that they are giving. Thirty of the arts and science divisions thus seek the advice of home economics in regard to the adaptation of their material to home economics service. The same practice prevails in 17 colleges of agriculture and in 11 schools of education. It will be especially surprising to many to find that in 16 institutions the colleges of engineering have a similar connection with home economics through the service given with reference to home equipment and housing.

The service thus rendered to home economics runs all the way from meat-cutting demonstrations by the animal-husbandry department to lectures on prehistoric weaving by the department of archæology. In one institution the pharmacy department aids with lectures on household remedies. The more extended course work covers a wide range as is evident from the fact that 34 institutions list 167 courses other than those required for the first home economics degree as being offered by other departments to home economics students. All of these courses are closely related to scientific or social phases of the better established aspects of home economics instruction with the possible exception of 24 in music, art, and literature. Further adaptation of the work offered by other departments to home economics students will doubtless be required as the functions of home economics are clarified and as curriculum construction is determined more largely by objectives than by the necessity of utilizing existing materials. On the other hand, expansion of the service that home economics can render to other divisions of the institution depends upon the degree of success attained in efforts to establish new and more thoroughgoing analyses of relationships and combinations of home economics subjects.

Chapter III.—Staff

Considerable confusion in definition of home economics objectives and corresponding variety and unequal development of organization for the accomplishment of objectives are perfectly natural phases in the creation of a new medium of scientific and social education upon the college level. Neither organization nor objectives can be developed, however, except as appropriately trained staffs are employed. The character of the personnel engaged in home economics teaching must of necessity limit and in large part determine the standards and the purposes of home economics work in the colleges. Study of the home economics staff and its management should provide, therefore, an important measure of the progress made and should indicate whether home economics staff viewpoints, training, and management are comparable to the standards in other fields of higher education.

Such study has two phases—first, that which deals with the more or less personal attainments of staff members, and, second, that which deals with the management of personnel. Each of these aspects of staff consideration will be presented in some detail by this section of the survey report.

Personnel Information

A whole series of questions that pertain to the personal experience and training of any group arises when an attempt is made to estimate the competence of the personnel to perform the duties involved in any situation. The survey, therefore, attempted in two ways to secure information that would answer some of these questions. First, the institutions were asked to make summaries and statements with reference to the staffs of each major division. Secondly, a questionnaire was filled out by individual members of the staff. More than 12,000 members of the staffs of land-grant institutions returned this questionnaire. This portion of the home economics survey report is based upon both institutional and the individual reports.

The questions most frequently raised concerning the personal qualifications of the home economics staff that this section will attempt to answer include the following: Is instruction in home

economics being given by young, middle-aged, or older persons? Have they had experience of marriage and in the actual conduct of a home under normal conditions? What education have they had and what teaching, administrative, or business experience? Do home economics personnel in land-grant colleges carry on research or other creative work? Are they interested in and do they associate themselves with the professional and scientific organizations in their fields? In other words, are the home economics staffs of the land-grant colleges live, competent, and energetic, or are they mediocre in ability, vigor, and interest in their work? Each of these questions will be discussed in the order given.

Age.—In any individual case the mere number of years that a person has lived is relatively insignificant as a basis for judging suitability for the job in hand. But youth or decrepitude is significant when either characterizes an entire group.

Approximately four-fifths of the 500 members of the home economics staff included in the institutional returns reported ages. The distribution shows 6 per cent under 25 years of age, 24 per cent 25 to 30 years of age, 46 per cent 31 to 40 years of age, 20 per cent 41 to 50 years of age, and 4 per cent 51 to 60 years of age. In other words 70 per cent of the home economics staff belong to the vigorous years from 25 to 40 and if to these be added the 20 per cent that are from 41 to 50 years of age, 90 per cent of the home economics staff clearly belong to the years that can with no degree of justice be described as either callow or decrepit. In so far as age is an indication the home economics staffs of land-grant colleges should show vigor and ability to adjust to new viewpoints and should be characterized by constructive interest rather than by the iconoclasm of youth or the standpattism of old age.

Experience.—It does not seem necessary to attempt to account for this age distribution. The fact itself is of primary consideration and among the many factors that may determine it only one is of special interest or importance. Has any selective process associated with marriage and family life left in the home economics staffs an undue proportion of women who have passed the age of probable marriage and establishment of their own homes? If this is a corollary of the present age distribution the matter is extremely important for a field of education that centers about home and family relationships. Actual experience of these responsibilities should contribute a desirable element of training to home economics college teachers.

Data on this matter are relatively incomplete. But only 25 of 43 institutions report any married persons upon their staffs. Among 697 members of home economics staffs that reported individually 72 are married and 39 widowed or divorced. Thus 111, or 16 per cent,

have had the experience of matrimony. Of the married members of the staff 39 per cent have children. It is significant that among a group of more than 600 persons engaged in the direction of education that depends upon homemaking for its incentive, so small a number have had experience in the fundamental relationship of marriage. Living in a home as a daughter or sister involves such different relationships from those of wife and mother that the one can not be substituted for the other. It is desirable that institutional and State restrictions upon the employment of married women be removed wherever they exist and that an adjustment of home economics instruction especially be made in order that women actually responsible for their own homes may more easily be employed upon a part-time basis.

Training.—Although the effect of training is in many individual instances inadequately represented by the academic degrees obtained by members of a college staff, the fact remains that for a relatively large group in educational work the degrees held are, in many respects, the most valid basis for estimating the degree of scholarship represented. The home economics staff in the land-grant colleges is no exception. It is, therefore, of special interest that of 697[1] individual records of the training of home economics staff members, only 30, or 4.7 per cent, have doctor's degrees. Inasmuch as the Ph. D. is the most commonly recognized badge of scholarship and of academic superiority, home economics and institutional administrations may well take measures to employ new members with the doctor's degree or to encourage study while in service which will enable present members of the home economics staff to obtain the Ph. D.

Experience of responsibility for a home, including both married women and those who have had such experience in some other relationship, is also very limited. Only about 35 per cent of the total report any such homemaking experience. Such experience should be valuable for understanding of the problems involved and as a balance to too theoretical teaching of subject-matter to undergraduate students.

A very much larger proportion of the home economics staff has obtained the master's degree, 254 out of 697 cases reported, slightly over 39 per cent. This is encouraging although it is not special cause for pride on the part of a college subject-matter division in view of the rapidity with which the master's degree is being required as a

[1] Of 697 reports received from individual staff members, 553 were employed by their institutions full time; 4 from 75 to 99 per cent; 30 from 50 to 75 per cent; 6 less than 50 per cent of full time; and 104 did not furnish information concerning the per cent of time employed.

preliminary qualification for employment in the better secondary schools.

But a really serious deficiency in the academic training of home economics staffs becomes evident when it is realized that 314, or 48 per cent of the persons employed in this division of the colleges hold no degree higher than the bachelor's degree. When the product of only a 4-year undergraduate course is brought into a division of the college teaching staff in such large numbers, it becomes fairly obvious that no very high standard of scholarship can be maintained. This is true even though the persons selected for such service represent the highest type of undergraduate ability and ambition.

The situation apparently becomes even more distressing when 49, or 7.5 per cent, of the home economics staff is shown by the individual reports not to have attained even the bachelor's degree. But when the additional fact is determined that of these, 41 are distributed among only 12 institutions, criticism for such low standards of employment must be confined to this group of land-grant colleges rather than applied to home economics standards as a whole. Even though all of the persons without degrees may hold teachers' certificates the criticism is but slightly ameliorated since in higher educational opinion teaching certificates are not as yet regarded as acceptable substitutes for college degrees.

The amount of training evidenced by degrees attained may be supplemented by the data concerning the years of training beyond high school possessed by 670 members of the home economics staffs. Two hundred and fifty-four report not more than four years, 280 from 5 to 6 years, and 136 seven years or more.

The proportion of the home economics staff whose highest degree is the bachelor's should be greatly reduced and employment of persons without any academic degree whatsoever should be confined to a few specialized fields in which degree training is seldom afforded.

In spite of the condition revealed by the facts just presented, the situation is not without encouragement. Many home economics staff members have, during the past five years, continued their academic study. During this period 18 heads of home economics departments have received advanced degrees, 3 of them their doctorates. During the same period 4 professors, 2 associate professors, and 5 assistant professors have earned their doctor's degrees, while 118 of these ranks have obtained master's degrees. It is apparent that home economics leaders realize the importance of further and better training for the technical members of the land-grant college staffs. The problem of securing persons of the desired academic training is, however, one of staff management and will be discussed in a subsequent section of this report.

In one aspect of the training of college teachers that is now exciting much interest and discussion, courses in education subjects, home

economics college teachers show a record that can probably be equaled by no other element of the land-grant institutions unless it is by the staffs of schools of education. Of 697 individuals reporting, 7 indicated that they had received no credit in undergraduate or graduate courses in education and 198 failed to give the data. But 78 had received from 1 to 11 semester hours of such credit; 209 from 12 to 23 hours; and 205 twenty-four hours or more. Certainly if courses in education as now given have the values for college teachers that are claimed for them, home economics teachers as a whole have a decided advantage over their fellow teachers in other divisions.

Experience.—Probably teaching experience is the most satisfactory supplement to, and perhaps even a good substitute for study experience on the part of educational folk. No attempt has been made, however, to determine by actual count whether the members of the home economics staff who have had teaching experience prior to their present employment are to any large extent the same as those who are somewhat deficient in academic training. Cursory examination of returns gives the contrary impression that the members of the staff with advanced degrees are those who have had also the advantage of teaching experience in elementary and secondary schools and in colleges.

The extent to which home economics staffs have enjoyed the advantages of such experience is evident from compilations made upon the basis of reports received from the institutions. These show that approximately 30 per cent of the members of the home economics staffs have had elementary school and 61 per cent high-school experience as teachers. The institutional reports are supported by reports from individuals that show 429 out of 647 or 66 per cent have high-school teaching experience. Of these, 372, or over 57 per cent, of the total have high-school experience in teaching home economics. It is interesting to note that 84, or 13 per cent, have had experience as principals or superintendents of schools.

The first-hand knowledge of secondary school work thus indicated should be of special value in the preparation of students for home economics teaching in the high schools and to a certain degree in adjusting college work to the capacities and previous training of entering students.

But probably of even more significance as a supplement for academic training is the experience that the members of the home economics staff have had in higher institutions other than the ones in which they are now employed. According to institutional reports almost 39 per cent have had such prior experience. Of these, 12 per cent had 1 year of experience elsewhere; 40 per cent from 2 to 4 years; 40 per cent from 5 to 9 years; and 8 per cent from 10

to 20 years. Thus selection of staff from other institutions to fill vacancies has been in 80 per cent of the cases from the group with from 2 to 10 years' experience.

But in addition to the value of experience in other institutions is the period of service in the institutions in which members of the staff are now employed. Data were obtained on this matter concerning 355 persons, of whom 91, or 25 per cent, had served 1 year; 124, or 35 per cent had served from 2 to 4 years; 96, or 27 per cent, had served from 5 to 9 years; 42, or 12 per cent, had served 10 to 20 years; and 2, or 1 per cent, had served more than 20 years.

It is interesting to note that more than half of the persons now upon the land-grant college home economics staffs reported have served in their present institutions less than five years. Whether this is an undesirable or a desirable condition is difficult of determination. It may indicate either a relatively rapid rate of turnover or considerable expansion in the size of home economics staffs during the 5-year period.

Although it is impossible to ascribe any specific influence upon the competence of the home economics staff to business experience it is of interest to learn that 67, or over 13 per cent, of those reported upon by the institutions have had such experience. The fact may be of some importance as indicating that a certain proportion have had wider contacts than those of the academic world but this is by no means certain since no means are available for determining the nature of such experience or of discovering whether these members of the staff were selected because of the success of such experience or sought themselves academic employment because it was more congenial than employment in the business world.

Creative activities.—Creative work by the staffs of the higher institutions is not confined to research, although the tendency to emphasize research activity in forming estimates of a college or university faculty sometimes gives this impression. Constructive effort of a creative character may be expressed in a variety of ways. Magazine articles, popular bulletins, and similar forms of interpretation to the public may and do quite frequently constitute a constructive element in educational service. Invention or the practical application of research results is a service that indicates intellectual activity of a high type. Examination of the creative work of the home economics staff is, therefore, not confined to research but is also presented with reference to publications of all types.

A study of the creative work of the home economics staff members in 39 institutions as reported by the institutions for the five years previous to 1928, viewed from the standpoint of writings, shows a total of 31 books produced, 23 research bulletins, 74 bulletins of

popular nature, 109 technical articles, and 116 miscellaneous articles. Seven of the thirty-nine institutions report no publications of any kind during the 5-year period. The maximum number of research bulletins produced by the home economics staff in a single institution during the five years was 4; of technical articles, 34; of books, 8; of popular bulletins, 11; and of miscellaneous articles, 20. Many institutions had only one item of each kind to credit to the home economics staff.

Of the 697 individual reports, 457 do not indicate publications of any character; 52 report publication of research material only; 149 the publication of popular articles only; and 39 have published both popular and research material.

Interest in such work should be stimulated. Home economics needs scholarly material both in the scientific and social aspects of its work. An increase in the amount of interpretative material of more or less popular type is also desirable. It should be one function of college home economics staffs to take the leadership in providing publications of both types and administrators should check to ascertain the possibilities for such development in their institutions.

Further study of the material produced by 24 institutions during the years 1926–27 and 1927–28 shows that among those who have written something are 61 professors, 27 associate professors, 22 assistant professors, and 17 instructors. This is perhaps a fairly typical distribution of such activity among academic ranks. It is interesting, however, to note that instructors of home economics are more active in producing books than is any of the other ranks.

As indicative of the relative development of the various subject-matter departments with the home economics unit, it is significant that of 121 publications produced by this division in 25 institutions, 55 are ascribed to members of the staff in foods and nutrition; 26 came from textiles and clothing; 15 from teacher training; 14 from household management; 6 from applied art; 3 from departments of family life; 1 from a department of health; 1 from related science, and none from a department of institutional management. In 14 cases the departmental source was not indicated.

Affiliations.—Probably study of the membership of any division of a college staff in the scientific or scholarly societies is more significant because of the conclusions that may be drawn from failure to make such affiliations than from the positive and specific benefits that accrue from these associations. Membership is easy to obtain in most instances, requiring little more qualification than ability to pay dues. Yet lack of interest on the part of a large proportion of staff members in association with persons of similar professional employment and in the publications issued by such groups betokens a provincialism and a degree of contentment that are extremely undesirable.

It is significant, therefore, that according to institutional reports, more than 68 per cent of the home economics staff personnel in 43 institutions are members of the American Home Economics Association, the most inclusive of the national professional organizations

devoted to home economics. The impression produced by membership in State teachers associations is also favorable. Thirty-nine institutions report 185 persons on the home economics staff as belonging to such associations. Inasmuch as teacher training is but one aspect of home economics interest this seems to denote a lively association with the local professional groups that represent the teaching interest.

Five hundred and two individuals, or 72 per cent of the total number of such reports received, belong to scholarly and professional organizations. To record membership in associations of less general appeal would merely multiply wearisome details. But it does seem worth while even at the risk of excessive dryness to present the facts in regard to the number of home economics staff members that hold office in organizations of professional character. Holding an office in an organization indicates quite a different degree of active participation and influence than mere membership.

National organizations in which home economics staff members hold office are: The American Home Economics Association with 13 institutions reporting 21 members in office in 1927–28; the American Association for Vocational Education with 4 institutions reporting 4 persons in office; Better Homes in America, in which 3 persons from 3 institutions are holding office. Three institutions report 4 offices on the Board of Vocational Education; 9 report 11 persons serving as officers in the State teachers association; 29 report 57 staff members holding office in State home economics associations; 2 report activity in this direction in the State federation of women's clubs; 6 in State parent-teachers associations; and 1 in the Camp Fire Girls. One institution reports some member of the staff holding office in all of these organizations mentioned as well as in the Girl Scouts. In local organizations the largest interest is shown again in the federated women's clubs in which 11 institutions report members of the staff holding office. Three institutions only, mention such relationship with professional and business women's clubs.

Affiliations of home economics staff members are varied and fairly broad. The fact that the largest number of contacts of this sort is shown with organizations closely related to and associated with home economics work indicates that the staff is devoted to its own profession and that it is participating to a considerable degree in organizations that command the interest and support of women outside the field of higher education.

Of somewhat different character are home economics memberships in honorary scholastic societies. The fact that 54.3 per cent of the total home economics staff are members of Phi Beta Kappa, Sigma Xi, Omicron Nu, and similar organizations indicates a relatively high degree of academic achievement upon the under-graduate level. In other words it seems that a considerable proportion of the home economics staff have shown a high degree of intellectual ability. Selection for these societies is a fairly reliable measure of scholastic ability.

Staff management.—Many elements of home economics staff quality are dependent to a considerable degree upon institutional policies and procedures. Personal attainment on the part of individuals is limited by such management. The possibility of such attain-

ment is to a considerable degree determined by such management. Utilization to the best advantage of the existing abilities and capacities of the staff is a function of management. It is with these aspects of the home economics staff that the following pages will deal. Home economics staff selection, promotion, salaries, rank, duties, improvement, and turnover will be discussed in turn from this standpoint.

Selection.—Because of the variety of places to which home economics units are assigned in land-grant college organization, the channels that must be followed in selection of new members of the home economics staffs are of special importance. The normal procedure in the institutions is that of recommendation by the head of the department to the dean, by the dean to the president, and by the president to the governing board. The position of home economics in the institutions is so varied that it might be expected that the influence of the head of home economics in the important matter of staff selection would show considerable variation and in some cases be so reduced as to become of negligible importance. However, the reports from the institutions do not seem to confirm this reasoning. In the 40 institutions reporting, the head of home economics is directly responsible for recommending new appointments. Even when the home economics unit occupies a relatively subordinate position in the institution, the practice is apparently to depend upon the judgment and knowledge of the head of the unit in choosing new home economics staff members.

The implications of this estimate of the statements made by the institutions are clear. The training, experience, and character of the home economics staff in so far as these are determined by the selection of new personnel during the terms of the present heads of the work are due directly to these heads and not to imposition of undesirable persons upon the home economics staff by deans or other superior authorities. If the character of these selections is inferior or superior to the standards prevailing in the institution as a whole, the responsibility rests largely with the home economics unit itself, except as the unit may be restricted or aided by salary scales that compare unfavorably or favorably with those of other divisions.

Promotion.—Very similar conditions exist with reference to promotions. In 40 institutions the head of the home economics unit is directly responsible for the recommendation. However, promotions can not be made within a single unit or division without reference to other elements in the institution. Final decision with reference to promotion is, therefore, much less likely to coincide with recommendation than is the case in the selection of new members of the staff. Superior authority is compelled by financial limitations and institutional unity to exercise a much larger degree of control.

In other words, the regulation of promotion is an institutional rather than a divisional function.

The principles or policies that have actually operated with reference to the promotion of home economics staff members in the land-grant institutions should be those that operate for the institutions as a whole. According to the home economics reports the factors that determine are securing advanced degrees, length of service, and quality of work in the order named. One institution reports "no definite standards," another that it has "no information" and 10 fail to make any statement whatsoever.

It is interesting in this connection to note that the weight given to securing advanced degrees varies somewhat between those obtained in the institution in which the staff member is serving and those obtained from other institutions. Nine institutions report procurement of advanced degrees obtained within the institution as a factor in promotion, while 19 report such training as a factor when received from outside the institution. Apparently and rather reasonably there is some tendency to regard the new viewpoints, new contacts, and new experiences implied by graduate work at another institution as of more value than the work done with colleagues under familiar conditions.

How home economics staff members have actually fared under the conditions of promotion during the five years prior to 1928 is of interest. Reports from 34 institutions with total staffs of approximately 697 show that 88 have received promotions during the period. Of these promotions 27 were made in 1927–28; 6 to the rank of professor; 9 to associate professor; and 12 to assistant professor. Although so small a proportion of the home economics staff received promotion during the five years the fact is not as important as it seems. A large number of the institutions have very small home economics staffs. With departmentalization carried to the point that it is within these staffs and with appropriate academic ranks assigned to each department the opportunity for promotion is very limited. In larger staffs changes in personnel provide vacancies that may be filled by promotion of lower ranking staff members.

Salaries.—Several theories seem to be applied in the land-grant colleges with reference to the basis of payment of women members of the staffs of which home economics personnel constitutes so large a part. First, there is the principle that equal work and rank demand equal pay for men and women. Second, there is the practice that attempts to adjust pay to the financial needs of staff members which results in a lower range for women who are unmarried (since it is said "they have no families to support") and has the same effect upon the pay of married women (since "they have husbands to aid in maintaining the family"). In the third place, pay may be determined upon the basis of training and creative activity. This principle also tends to lower the average level of home economics compensation in somewhat the same ratio to the remuneration of other staff members that the standards of home economics staff training and creative work bear to standards in other divisions. Whatever theoret-

ical approval may be given to the first of these principles and whatever the arguments that may be advanced against the second, it is difficult to disapprove that institutional management upon the basis of the third method has not resulted in the lower present actual standard.

The facts in regard to the pay of 407 members of home economics staffs in 40 institutions are presented in Table 2. The figures in this table are interesting in the extreme. Three assistant professors and 15 instructors receive less than the pay of a third-grade clerk in the Federal Government service. No one of 35 home economics heads receives more than $6,000, and only 1 receives more than $5,000. More than 80 per cent of the entire group of 407 receive less than $3,000 per year.

Comparison of Table 2 with the salary range derived from reports by 693 individual staff members, is illuminating.[2]

TABLE 2.—*Salary scale—home economics undergraduate staff in land-grant institutions, 1927–28*

Rank	Number receiving—								
	Less than $500	$501–$750	$751–$1,000	$1,251–$1,500	$1,501–$1,750	$1,751–$2,000	$2,001–$2,250	$2,251–$2,750	$2,751–$3,000
1	2	3	4	5	6	7	8	9	10
Dean or director									2
Professor								2	8
Associate professor							2	16	12
Assistant professor				2		9	10	64	24
Associate							1	12	1
Instructor	2		5	1	7	52	32	32	1
Assistant	3	14	6	5	2	2			
Lecturer		1		1		1			
Total [a]	5	15	11	9	9	64	45	126	46

Rank	Number receiving—							
	$3,001–$3,250	$3,251–$3,500	$3,501–$3,750	$3,751–$4,000	$4,001–$4,500	$4,501–$5,000	$5,001–$5,500 [b]	Total
	11	12	13	14	15	16	17	18
Dean or director	1	6	6	8	5	6	0	35
Professor	8	10	5	5	1	0	2	41
Associate professor	10	7	2	1	1			51
Assistant professor	5	14	6					134
Associate								14
Instructor								132
Assistant								32
Lecturer								3
Total	23	31	13	6	2	0	2	407

[a] Dean or director not included in total.
[b] None receives more than $5,500.

[2] Compare also with compensation of graduates of land-grant colleges who have become college teachers, Part V, p. 345.

TABLE 3.—*Salary range of 693 individual home economics staff members*

Range	Number of cases	Range	Number of cases
$100–$499	2	$3,500–$3,999	44
$500–$999	16	$4,000–$4,499	9
$1,000–$1,499	16	$4,500–$4,999	5
$1,500–$1,999	61	$5,000–$5,499	4
$2,000–$2,499	233	$5,500–$5,999	1
$2,500–$2,999	181	$6,000–$6,499	3
$3,000–$3,499	118		

Nor is this situation relieved to an appreciable extent by perquisites received in addition to salaries or by additional institutional earnings for evening classes, extension, or summer school. Of five heads of departments who receive perquisites ranging in value from $60 to $500, only one is in a salary grouping of less than $3,000. Four professors in two institutions are reported with perquisites ranging in value from $135 to $550. Two associate professors in one institution have perquisites with a valuation of $437.50 which adds to their salaries of between $3,251 and $3,500. Ten assistant professors in eight institutions have perquisites ranging in value from $50 to $500. Seventeen instructors in nine institutions receive perquisites ranging in value from $150 to $600. Four assistant instructors in three institutions are listed with perquisites from $200 to a little more than $400. Individual reports show that of 697 cases 38 receive perquisites valued at less than $299; 58 perquisites worth from $300 to $599; 14 from $600 to $899; and 6 of value greater than $900. Additional institutional earnings according to the same reports amount to less than $299 in 26 instances; to from $350 to $599 in 88 cases; to from $600 to $899 in 13; and to $1,200 or more in 2.

Although the idea that college teachers are able to supplement their institutional salaries to a considerable extent by outside earnings is much exaggerated for all major divisions, home economics teachers in college show less general and less remunerative outside activity than their colleagues in other divisions. Of 697 individuals who submitted reports only 19 recorded such outside earnings. Ten of these added in this way less than $299 per year to their institutional salaries; five from $300 to $899; four earned $1,200 or more per year.

Rank.—The practice of substituting the honor of high academic ranking for the material compensation of the pay roll is not unknown in the educational world. This is perhaps a justifiable practice when the method produces the contentment that contributes to the efficiency of staff work. That the ranking of the home economics staff show little evidence of this practice is evident in the distribution shown in the last column of Table 4.

The distribution of rank between professors, associate professors, and instructors shows 11 per cent in the highest of these ranks; 15 per cent associate professors; 36 per cent assistant professors, and 38 per cent instructors. The home economics staff shows a decided weight in the lower ranks. This may be due to relatively low academic training, short periods of service, or rapid turnover. It is not of necessity due to institutional management of the home economics staff in the interest of maintaining a large proportion of the staff in the lower grades.

TABLE 4.—*Present age of staff members of various ranks*

Rank	Number aged						
	Under 25	25–30	31–40	41–50	51–60	Over 60	Total
1	2	3	4	5	6	7	8
Head of department	0	1	6	22	4	1	34
Professor	0	0	16	17	5	0	38
Associate professor	0	4	23	21	4	0	52
Assistant	3	21	76	24	1	0	125
Associate	0	0	6	3	3	0	12
Instructor	11	56	53	8	3	0	131
Assistant	11	13	5	1	0	0	30
Lecturer	0	2	2	1	0	0	5
Total[1]	25	96	181	75	16	0	393

[1] Heads of departments not included in total.

Table 4 also reveals some interesting situations with respect to age distribution among the different academic ranks. The percentage of professors, of associate professors, and of instructors in the age group 31–40 is almost the same, 42 per cent, 44 per cent, 40 per cent, respectively. This may mean either that members of the staff have begun their home economics careers later in life than is usual or that they have not advanced in rank. If the latter is the case, there may be some correlation between this fact and the training secured since their positions were obtained.

The institutional reports concerning the present age of staff members with reference to their academic rank may be supplemented by the record derived from individual staff returns showing distribution of ages at which certain ranks were attained.

TABLE 5.—*Age at which different ranks were attained*

Rank	Age and number of cases							
	19	20–24	25–29	30–34	35–39	40–44	45–49	50
1	2	3	4	5	6	7	8	9
Instructor	3	81	131	64	25	9	4	-------
Assistant professor	0	6	42	69	34	19	3	1
Associate professor	0	1	10	22	21	15	5	2
Professor	0	8	11	23	23	11	6	1

Duties and Schedules

At no point has the management of the staff more direct influence upon standards and effectiveness of instruction than in the assignment of duties. Colleges and universities are teaching and research institutions. It is a matter of primary concern, therefore, that as large a proportion of the human energies of the staff as is possible be devoted to these functions. Administration in an educational institution exists for and should be directed to facilitating the activity of the nonadministrative staff upon teaching and research. Assignment of duties and the way the members of the faculty spend their time provide a means whereby the effectiveness of divisional and institutional administrative officers may be measured. Individual teachers have little responsibility in this matter except as their training and abilities make them available for assignment to work that needs to be done.

It is the purpose of succeeding paragraphs to examine the duties performed by the administrative heads of home-economics units, to discuss the nonteaching and nonresearch responsibilities laid upon the home economics unit and to present the facts in regard to the loads borne by faculty members and the activities to which their time is devoted.

Of the 67 different types of duties and functions sometimes performed by the home economics staff and listed in the replies from 42 institutions, there is scarcely one that is not credited to the head of home economics. Only 17 institutions report that any of these duties are performed by clerical assistants, although many of the activities listed are purely clerical in character. Even though more than 60 per cent of the institutions have home economics units composed of 10 or fewer persons, it is very wasteful of the time of a relatively highly paid administrator and teacher to require of her performance of manual and routine duties. It is, of course, not certain in many of these instances of apparent mismanagement of the time of home economics heads that the fault is due to institutional oversight. It has been suggested by various home economics leaders that this condition is in part due to a variety of causes such as the tendency of women to economize wastefully in small things, a mistaken pride in keeping all details in hand which results in failure to delegate work and to organize it effectively, and lack of experience which will enable the director of home economics to classify activities in order of relative importance. However this may be it is evident that a study should be made in each institution of the actual duties performed in order that a reorganization and a reassignment of administrative detail may be made which will not only

prevent waste but which will release the time of trained administrative personnel for the more important phases of staff management.

The duties of the head of the home economics unit thus far discussed relate largely to normal processes that must be carried on in connection with administration of the home economics unit. Of quite different character are certain other nonteaching, nonresearch duties placed upon the unit.

In 10 institutions among 28 reporting home economics is responsible for advising with institutional dormitories.

In seven of these it is the head of home economics (Colorado Agricultural College, Massachusetts Agricultural College, Michigan State College, Montana State College, North Dakota Agricultural College, University of Tennessee, State College of Washington). In three others assistants on the home economics staff perform these functions (these are University of California, Kansas Agricultural College, Oregon Agricultural College). One institution, Montana State College, reports two sorority houses supervised by the home economics head; two institutions, the University of California and Oregon Agricultural College, report that assistants supervise fraternity or sorority houses; one institution, the University of California, reports that home economics assistants also supervise cooperative houses. In Virginia Agricultural and Mechanical College the head of home economics has this responsibility.

In 18 institutions home economics is responsible for the supervising of college cafeterias or dining halls.

In 10 responsibility lies with the head of home economics. (These are, University of Kentucky, University of Maryland, Michigan State College, Montana State College, University of Nebraska, Rutgers University, Oklahoma Agricultural and Mechanical College, University of Tennessee, Washington State College, and University of Wyoming.) In eight others, members of the staff supervise (University of California, University of Illinois, Iowa State College, Kansas State Agricultural College, University of Minnesota, University of New Hampshire, Ohio State University, and Oregon Agricultural College).

It is clear from these reports that home economics is taking a larger part in the actual housing of the student body than was indicated by its membership on committees whose work it is to direct housing and feeding policies.

The connection of home economics with institutional housing and feeding committees is, of course, entirely appropriate. It should be assumed that home economics has something to contribute to these activities and responsibilities in every institution. However, to accompany such connection with direct home economics responsibility for operation of these auxiliary services is quite a different matter. The two functions are in very different categories. If members of home economics are in charge of actual operation of dormitories and dining halls special personnel should be furnished for the purpose or adequate time allowance from teaching duties provided. Distinct instructional values may be obtained for home economics by such connection, but too frequently these duties are

imposed upon a staff already heavily loaded by classroom teaching. The wisdom of comparable assignment of actual responsibility for the business operation of the institution to the school of business, of building construction to the school of engineering, and of the institutional laundry to the home economics department is not assumed. It may be questioned whether the assumption is justified in the case of the operation of dining halls and dormitories.

The distribution of teaching, research, and administrative duties among the staff members gives a picture of the activities of the faculty for which the divisional and institutional authorities are largely responsible. Table 6 shows that this distribution in general is based upon the returns received from 39 institutions.

TABLE 6.—*Distribution of duties of undergraduate home economics staff in 39 land-grant institutions, 1927–28*

Rank	Number engaged in—							
	Undergraduate work	Graduate	General research	Purnell research	Extension	Institutional management	Graduate study	Administration work
1	2	3	4	5	6	7	8	9
Head of department	20	17	10	10	7	5	8	25
Professor	28	25	12	3	0	3	6	12
Associate professor	33	30	11	5	5	5	2	13
Assistant professor	68	38	7	8	8	9	9	22
Associate	22	3	2	0	0	2	3	0
Instructor	86	16	6	5	3	8	14	10
Assistant	10	1	0	1	0	7	4	0
Lecturer	4	2	0	1	0	3	0	1
Total [1]	251	115	38	23	16	37	38	58

[1] Heads of departments not included in total.

Approximately 450 members of the home economics staffs are represented in the distribution of duties shown in Table 6. Almost 57 per cent, therefore, devote full time to resident undergraduate work carrying on no administrative duties, no direction of graduate work, no research, no extension, and are themselves doing no graduate study while in service. It is also interesting to note that about one-fourth of the entire staff represented is directing graduate work. Only 11 institutions report no undergraduate staff member who is not also engaged in graduate teaching. In view of the paucity of Ph. D.'s among the members of home economics staffs it would appear probable that the graduate work in home economics, as in other fields, is upon the master's degree level in most of the land-grant colleges. This inference is confirmed by evidence contained in the part of this survey dealing with graduate work in the land-grant institutions.

Another approach to the distribution of the time of faculty members is that obtained by determining for each of the activities the number of the staff that spend certain proportions of their time upon each. Although Table 7 shows that these facts are based upon the same set of staff members as Table 6 the classification is somewhat different.

TABLE 7.—*Study of division of time of home economics staff members in undergraduate work in land-grant institutions, 1927–28*

Rank	Resident teaching—number giving					Research—number giving					Administrative and committee—number giving				
	1–25 per cent	26–50 per cent	51–75 per cent	76–100 per cent	Total	1–25 per cent	26–50 per cent	51–75 per cent	76–100 per cent	Total	1–25 per cent	26–50 per cent	51–75 per cent	76–100 per cent	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Head of department	17	10	3	2	32	14	5	0	0	19	9	9	11	5	34
Professor	2	6	15	14	37	15	3	0	0	18	19	10	1	2	32
Associate professor	0	12	14	25	51	14	3	1	1	19	26	8	1	0	35
Assistant professor	7	15	17	68	107	17	5	2	3	27	56	5	3	0	64
Associate	0	1	5	6	12	2	0	0	0	2	3	1	0	0	4
Instructor	9	15	10	83	117	15	4	1	1	21	27	4	0	4	35
Assistant	2	6	6	4	18	1	1	0	0	2	6	0	0	2	8
Lecturer	0	1	0	0	1	0	0	0	1	1	0	0	0	3	3
Total[1]	20	56	67	200	343	64	16	4	6	90	137	28	5	11	181

Rank	Extension—number giving					Outside activities and contracts—number giving				
	1–25 per cent	26–50 per cent	51–75 per cent	76–100 per cent	Total	1–25 per cent	26–50 per cent	51–75 per cent	76–100 per cent	Total
	17	18	19	20	21	22	23	24	25	26
Head of department	12	1	2	0	15	29	0	0	0	29
Professor	12	0	1	2	15	29	0	0	0	29
Associate professor	10	0	0	0	10	33	0	0	0	33
Assistant professor	13	4	1	0	18	61	4	0	1	66
Associate	1	0	0	0	1	8	0	0	0	8
Instructor	8	1	0	4	13	36	2	0	1	39
Assistant	0	0	0	2	2	6	0	0	0	6
Lecturer	0	0	0	3	3	0	0	0	0	0
Total[1]	44	5	2	11	62	173	6	0	2	181

[1] Heads of departments not included in total.

These reports from 39 institutions show 59 per cent of the staff of all ranks giving most of their time to resident teaching. The ranks carrying the heaviest teaching loads are the assistant professors and instructors; of the former 64 per cent and of the latter 71 per cent

are giving 75 to 100 per cent of their time to teaching graduate and undergraduate work. Of the total number 71 per cent give 25 per cent or less of their time to research. Very few of the staff give any time to extension, although 80 per cent of the heads of departments devote 25 per cent or less of their time to this activity. The separation of home economics resident and extension staffs that prevails in the land-grant institutions accounts in large part for the unimportant place that extension work occupies among the duties of the resident home economics staffs.

All ranks share in administrative and committee work, but it is indicative of the relatively undeveloped condition of home economics divisions that the heads of only 5 of the 34 home economics units represented devote more than 75 per cent of their time to administrative work. Slightly more than 50 per cent give less than half their time to administration.

If the facts upon which Table 8 is based were compared with the actual hours of class work reported for these members of the home economics staff, it would be possible to translate percentages of time spent upon duties other than teaching into terms of the hour load per week spent by these faculty members upon institutional duties. Unfortunately, it is impossible for the survey staff to make this detailed study, but inspection suggests that some curious situations exist that would repay further investigation.

Distribution of institutional time as derived from the reports of 697 individual members of home economics staffs is shown in Table 8.

TABLE 8.—*Distribution of time of the 697 home economics staff members in land-grant institutions*

Division of work [1]	Percentage of time						
	No reply	No time	19 per cent or less	20 to 39 per cent	40 to 59 per cent	60 to 79 per cent	80 to 100 per cent
1	2	3	4	5	6	7	8
Undergraduates	157	231	22	37	50	41	159
Graduates	179	920	224	72	14	8	8
Research	179	454	26	11	16	2	9
Other creative work	179	459	39	5	3	2	10
Administrative work	172	307	117	48	28	6	19
Extension	178	255	58	7	10	3	186
Public contacts	171	329	190	5	1	0	1

[1] The total number of home economics staff members reporting is considered with reference to each division of work, i. e., undergraduates, graduates, research, etc.

The teaching loads of heads of home economics units and of the different ranks are presented in Table 9.

TABLE 9.—*Range of teaching loads of home economics staff members of 38 institutions reporting, 1927–28*

Rank	Class hours—number having									Student clock hours—number having					
	5 or less	6–10	11–15	16–20	21–25	26–30	31–40	41–50	Total	Less than 100	101–200	201–300	301–400	401–500	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Head of department	8	12	5	2	2	1	1	0	31	12	5	7	3	0	27
Professor	4	5	7	3	2	1	0	1	23	4	9	3	4	2	22
Associate professor	2	9	14	13	2	1	1	0	42	9	11	11	5	3	39
Assistant professor	4	17	23	33	5	4	1	7	94	17	22	26	16	10	91
Associate	0	3	7	2	0	0	0	0	12	1	10	1	1	1	14
Instructor	8	20	30	26	9	5	0	3	101	11	24	22	25	12	94
Assistant	4	8	2	0	2	0	0	0	16	5	2	1	0	2	10
Lecturer	1	2	0	0	0	0	0	0	3	2	0	0	0	0	2
Total [1]	23	64	83	77	20	11	2	11	291	49	78	64	51	30	272

[1] Heads of departments not included in total.

A study of Table 9 shows a third of the 31 heads of home economics units carrying 6 to 10 class-hours per week. Another fourth carry less than five hours. Almost half of those reporting show less than 100 student clock-hours per week. It is apparent that home economics heads are keeping in touch with the student body through some teaching. This is made possible and indeed necessary by the fact that the size of home economics staffs in such a large proportion of the land-grant institutions is small.

Of the staff of all ranks 8 per cent have a class-hour load of less than 5 hours; 23 per cent from 6 to 10 hours; 29 per cent from 11 to 15 hours; 27 per cent from 16 to 20 hours; 6 per cent from 21 to 25 hours; 3 per cent from 26 to 30 hours; less than 1 per cent from 31 to 40, and 3 per cent from 41 to 50 hours.

Among the most important features of institutional management of the staff is the provision made for maintenance and improvement of faculty quality by means of attendance at professional meetings, study while in service, and leaves of absence for graduate work elsewhere. These matters are of special significance for the home economics unit in view of the need for research experience and development of higher standards of staff training.

Reports from 39 institutions show a total of 206 home economics staff members in attendance at professional meetings of one sort or another during 1928. These institutional reports are confirmed by individual statements which show 317 staff members of 697 in attendance upon such meetings. This is a very good representation indeed, approximately half of the home economics staffs. It is evident that such meetings must be attended more generally by the lower academic ranks than is usual with many of the institutional divisions. How-

ever, further examination of the reports shows that this participation in professional discussion was more largely due to the individual initiative of staff members than to substantial institutional encouragement. Two-thirds of the reports show that the head of the home economics unit paid her own expenses to such meetings and that more than half of the professors and instructors were also unassisted by the institutions. Although differences in local conditions and in the accessibility of institutions to the usual centers for professional meetings make uniformity of practice in regard to travel of staff members impractical, many State and institutional regulations that now restrict out-of-State travel should be removed and more serious efforts should be made to secure funds to assist staff members to retain their professional associations by attendance at important educational gatherings. The more remote the institution is from the usual meeting places, the greater the need for such institutional assistance. Perhaps keener administrative appreciation of the importance of such contacts might result in the development of regional conferences that might be attended at less expense or at any rate might result in more urgent efforts to secure important meetings at places more convenient to their institutions.

Provision for graduate study within the institution in which staff members are employed is reported by 27 institutions. However, three institutions definitely state that the practice is not allowed. That there is relatively little liberality in adjusting staff duties in order to provide time for such study is evident from the fact that only 6 of the 27 that permit it encourage the practice. Undoubtedly attendance at institutions other than those in which the staff are employed has decided advantages. However, study within the institution itself is preferable to conditions of institutional management which discourage attempts at self-improvement.

This matter is of special importance in view of the fact that so few of the land-grant colleges have institutional provision for leave for study. Only 12 of 30 institutions reporting indicate that home economics staff members have been entitled to such leave during the past five years. During this period in 11 of these institutions 26 members of the staff actually received such leave with pay or part pay. Five of these were heads of home economics units, 8 professors, 3 associate professors, and 10 assistant professors. In addition 14 institutions report that 26 home economics staff members took leave equal to sabbatic leave during these years but without pay. Six were heads of departments, 1 a professor, 3 associate professors, 10 assistant professors, 1 associate, and 5 instructors.

It is apparent that the tendency to stay on the job is not seriously affected by institutional staff management. The extent to which

home economics staff members obtain fresh surroundings, and new experiences by shifting about between institutions is, of course, an important factor in the expenses incident to rapid turnover. Perhaps more generous provision of leave for study would prove less expensive than the continuous process of hiring and training new home economics teachers.

Turnover.—During the same 5-year period for which leaves were reported, a total of 124 home economics staff members, exclusive of heads of department, left to take teaching positions elsewhere; 41 to go into business; 64 have married and left their institutions. A total of 229 changes. The largest turnover is among instructors. This is serious since these are the young and vigorous element in the staff and should provide the stimulating influence of new blood.

No home economics staff members have been retired with pension during this period, according to reports from 27 institutions. Five have been retired without pension. Only five of the total staff in all institutions reporting have died during this period. Only two institutions report no change in staff in the 5-year period. Both of these, however, have very small staffs.

Table 10 shows the distribution of turnover among different ranks for the 5-year period 1923–1928.

TABLE 10.—*Distribution of turnover of home economics staff members for the 5-year period 1923–1928 in 27 land-grant institutions*

Rank	Staff members	Number					
		Leaving past 5 years			Resigning in past 5 years with salary under $1,800	Retired in past 5 years without pension	Deaths in past 5 years
		To take teaching positions	To take business positions	To marry			
1	2	3	4	5	6	7	8
Head of department	7	5	1	1			
Professor	10	4	3	3			
Associate professor	6	4	1			1	
Assistant professor	56	26	13	14		1	2
Associate	7	3	1	1			2
Instructor	113	56	10	32	11	3	1
Assistant	65	17	8	9	31		
Lecturer	3		2	1			
Total [1]	260	110	38	60	42	5	5

[1] Heads of departments not included in the total.

The home economics staff in land-grant institutions during the past five years has had a very large turnover. Factors operative are the low salaries paid and slow promotion, the increased interest of commercial firms in the home economics trained woman, offering larger salaries to successful people; marriage, which must always make fairly large inroads where the staff is composed to any considerable extent of young women; and the competition among colleges for

persons who have proved their worth. Constructive staff management might easily reduce the effect of some of these factors.

The emphasis of the present administrative viewpoint in regard to staff management is probably indicated with considerable accuracy by the aspects of such management that are apparent in the plans presented by 30 institutions for the development of their staffs during the next 5-year period. The points listed in descending order of frequency follow:

1. Increase in size of staff	17
2. Increase of the number of departments	9
3. Advanced study and travel	8
4. Better training of the staff	7
5. Provision of time for creative work	6
6. Addition of research workers to staff	5
7. Staff promotion	5
8. Increases of salaries	5
9. Require master's degree	4
10. Arrange for sabbatic leave	3
11. Require attendance at State and national meetings	2
12. More clerical assistance	1
13. Reorganization with head for each department	1
14. Require successful experience	1
15. Relief from heavy teaching loads	1

Ambitions for numbers and size are mentioned twenty-six times by these plans for development and six times with direct implication of better balancing of all aspects of home economics work. Phases of staff improvement that throw the burden of meeting higher requirements upon the individual staff members are mentioned by these plans for the future twenty-two times. Adjustments and arrangements by means of exercise of administrative action looking to better conditions and opportunities for the staff receive attention in 21 instances. It may be that the nature of these aspirations affords no legitimate basis for criticism. Certainly practically all the points suggested by the facts presented by preceding portions of this report as desirable steps are mentioned one or more times by this group of institutions. Criticism of desire for growth or of determination to require individuals to fit themselves properly for their duties would not be justified. Nevertheless, the fact that improvement through better exercise of divisional and institutional management is mentioned but twenty-one times raises the question as to whether the possibilities and the responsibilities of such means are fully realized or accepted.

Chapter IV.—Physical Facilities

Under modern conditions the impractical character of the popular saying about Mark Hopkins and the log becomes apparent in every element of the combination. Knowledge is so varied and so highly specialized that the accomplishments and interests of a small staff will bring to students an entirely inadequate measure of knowledge and wisdom. Seekers after learning are so numerous that the log must be developed into large and expensive buildings. The teaching process as a pouring out on the part of the teacher and absorption on the part of the student has given way to student learning through personal experimental experience with the materials of knowledge; laboratories and libraries are an essential factor that must be added to Mark and the log.

The fact that home economics objectives are in process of development is reflected in the character of its housing in the land-grant colleges. Although 18 of the institutions report their departments housed in 22 buildings used exclusively for this purpose, relatively few of these buildings were constructed with the specific requirements of modern home economics service in mind. Sixteen home economics units share buildings with other divisions, and in these instances expedients have in most cases been used to adapt the housing to home economics use.

Among the 22 buildings which are clearly shown by reports to be used exclusively for home economics instruction, 2 were erected before 1890; 5 between 1900 and 1910; 10 between 1911 and 1920; and 5 between 1920–1928. One institution, the State College of Washington, reports a new 5-story home economics building under construction. The space provided is to be ten times that in the present building. Among buildings used exclusively for home economics instruction, considerable range in valuation is noted. At the University of California, a 3-story building erected in 1908 is reported to be valued at $17,000. A 2-story building at Colorado Agricultural College erected in 1910 is valued at $46,000. At the University of Nebraska, a 3-story building erected in 1908 is valued at $55,000. At Kansas State Agricultural College, three buildings, one built in 1885, one in 1908, and the other in 1921, are valued at $79,000, $70,000, and $125,000, respectively. At Cornell University, the 4-story building in use since 1911 originally cost $154,000. At the present writing the central unit of a new building is under construction, the cost to be $475,000. At Oregon Agricultural College, two 3-story buildings erected in 1913 and 1920 are valued at $61,300 and $143,769. At the University of Minnesota, the department of home economics is housed in a 4-story building constructed in 1916 and valued at $9,000. The home economics building at Oklahoma Agricultural and Mechanical College erected in 1920 is valued at $200,000. The University of Tennessee reports a 4-story

building for home economics erected in the year 1926, costing $200,000. Michigan State College has a comparatively new 4-story building erected in 1923–24 valued at $350,000.

The number of rooms used for home economics undergraduate instruction varies greatly among institutions. In 11, or about 32 per cent, of the 36 institutions reporting, fewer than 10 rooms are available for home economics work; in 3, or 8 per cent, between 10 and 15; in 6, or 16 per cent, between 15 and 20; in 7, or 20 per cent, between 20 and 30; and in 10, or about 30 per cent, more than 30 rooms are in use. Five of the 10 institutions have more than 50 rooms used for home economics undergraduate instruction.

Adequate office space is essential in order that staff members may have opportunity for uninterrupted work and conference. In one institution, no office space is available for home economics staff members; in two, one office is provided for seven persons; in another, one office is used by six staff members. In but 4 institutions among the 37 reporting is there an office for each staff member. Office facilities are inadequate.

More important than number, age, and value of buildings in which home economics is housed are the provisions made for student experimental experience of individual effort in the fields with which home economics instruction is concerned. Such facilities in home economics are libraries, laboratories, nursery schools, home management houses, and those provided for practice work in medical schools and hospitals. Each of these will be discussed in turn.

Because of the relatively small size of most home economics units in the land-grant institutions and also probably because in so many instances the work is largely dependent upon the literature of other well-established fields, few of the home economics units have their own departmental libraries. Only 12 of 33 institutions reporting have library facilities of this type. The central library provides service and since the head of home economics is in 40 institutions responsible for recommending the purchase of new books in her field the opportunity is given to build up and to maintain an adequate collection wherever funds are sufficient. It should be noted in this connection that unless full advantage of this opportunity is taken by the head of the home economics unit, responsibility for inadequate collection rests to a large degree upon her shoulders.

Laboratories

In a field of study so much concerned with sciences as is home economics, laboratories must make up a considerable part of the teaching facilities. Among 38 institutions there are 402 laboratories in addition to home management houses and nursery schools, used in the direct teaching of home economics subjects.

One hundred and sixty-eight, or 42 per cent, of all laboratories are used for demonstration and experimental work in food preparation and service, food selection, dietetics, and other nutritional studies. One hundred and nineteen, or

29 per cent, are equipped for practice work in clothing and textiles. Fifty-one, or 12 per cent, for design and other practice work in connection with applied arts; 24, or 6 per cent, in institutional management laboratories, among which are cafeterias, and dining rooms for institutional service. Another 6 per cent were designated by the institutions as research laboratories equipped especially for research work. Twelve, or 3 per cent, are home management laboratories equipped and used for studies in selection and use of household equipment. Five institutions report laboratories fitted especially for practice work in house furnishing; four report home nursing laboratories.

Two hundred and eighty-five, or two-thirds of all the laboratories, are equipped for group work; 159 for individual work. This indicates a tendency to equip many laboratories as far as possible like home kitchens and home situations. It is not many years ago that all food laboratories in home economics schools were equipped with individual stoves and utensils but to-day there is a decided tendency to abandon the individual unit in favor of equipment that emphasizes less the difference between the laboratory and the home situation. Research laboratories are equipped for individual work but since this is on a different plane than undergraduate work, similarity to home situations would be a disadvantage.

The largest number of laboratories reported by any one institution is 33 (at Iowa State College) 9 of which are used for foods work; 9 for textiles and clothing; 10 for applied arts; 3, home management; 1, institutional management; and 1, vocational education. Oregon Agricultural College reports 32 laboratories: Ten for foods; 8, clothing and textiles: 3, applied arts: 3, home management; 3, institutional management; 1, research, and 1, housing. One institution, Ohio State University, reports 22 laboratories; Michigan State College, 21; University of Nebraska, 18; University of Minnesota, 17; University of Wisconsin, 15; South Dakota Agricultural College, 14; 2 institutions, University of California, and Oklahoma Agricultural and Mechanical College, 13; 2, Cornell University and University of Missouri, 12; 3, Montana State College, Colorado Agricultural College, and State College of Washington, 11; 2, North Dakota Agricultural College, and one other, 10; Rutgers University, 9; University of California at Los Angeles, 8; 2, University of Kentucky and West Virginia University, 6; 3, Rhode Island State College, Virginia Agricultural and Mechanical College; and University of Nevada, 4; 7 institutions, or 20 per cent of those reporting, are equipped with 3 laboratories each; and 1 institution shows but 2 laboratories, 1 for foods and 1 for clothing.

The number of laboratories that are used for graduate work as well as undergraduate instruction is significant. One hundred and fifty-one, or 37 per cent of all laboratories reported, are used for graduate as well as for undergraduate work. If the graduate work done is to any great extent upon the research level, it would seem that the appropriate techniques and equipment should depart considerably from those required for undergraduate work in which similarity to home situations is at present a determining factor.

Nursery Schools

The establishment of nursery schools in connection with home economics departments has a threefold purpose, namely: To give preparental training to students majoring in home economics; to give opportunity for parents to observe scientific methods of guid-

ing young children; and to provide for research in child development and behavior. Thirteen institutions report nursery schools in operation during the year 1927–28.

They are Alabama Polytechnic Institute, University of California, Iowa State College, Kansas State Agricultural College, Michigan State College, Purdue University, University of Nebraska, Cornell University, Ohio State University, Oklahoma Agricultural and Mechanical College, Oregon State Agricultural College, University of Tennessee, and University of Wisconsin. The Colorado Agricultural College maintains a nursery school during the summer session. Home economics departments in two other institutions report nursery schools established in the fall of 1928.

In seven institutions the nursery school laboratory is situated in the home economics building; in two, in home management houses. Four institutions report separate houses rented or owned for the purpose of a nursery school laboratory set-up.

Children who attend the nursery school are selected from a number of sources. Twelve of the 13 institutions report selection from the families of faculty members; 12, that children are selected from among those of well-to-do parents; and 5, that children in the nursery school are from among the poorer homes in the community. Most institutions choose from at least two of the three groups mentioned. Since the nursery school is a laboratory for the study of child behavior, a more accurate picture can be obtained from a mixed group of children than from the study of those who have been too highly selected from among one group.

The importance of the preschool period demonstrated by recent studies has been one of the newer discoveries in the field of psychology. For this reason the children enrolled in the nursery school are between 1½ and 5 years of age; most of them under 4 years of age. They come to the nursery schools in the morning and remain for varying lengths of time.

One institution reports that the children remain in the nursery school only two and one-half hours (University of Nebraska); two institutions report three hours (Oregon Agricultural College, Purdue University) a day for five days of the week. At Oklahoma Agricultural and Mechanical College and Alabama Polytechnic Institute, the children remain four hours; at Cornell University, University of Tennessee, Michigan State College, Kansas State Agricultural College, and Iowa State College, six hours; at Ohio State University, and the University of California, they are in attendance seven hours each day for five days of the week.

During this time they are guided in play and in various tasks to stimulate certain types of development and to establish desirable physiological habits.

Among the 13 institutions 49 staff members with special training in child development, child psychology, and child care have charge of the nursery school. Among their duties, in addition to the guidance of children and training of students, are conferences with parents. In the majority of nursery schools weekly conferences are held between parents and specialists in the various fields of child guid-

ance. Three institutions report that both parents are urged to attend the nursery school at least once every quarter for conference with instructors and for observation of the nursery school techniques. Study groups of mothers are generally organized and maintained in order to relate the work of the nursery school to that of the home. These study groups are valuable in bringing to the teachers in the departments a fuller knowledge of the child's home environment, habits of behavior, and an understanding of the emotional life of the child. The majority of institutions report that cooperation between parents and staff is maintained by specialists in foods and clothing, who confer with mothers in regard to diets and proper clothing for children.

In this work the nursery school staff is aided by the department of education in eight institutions; the department of physical education in five; and the department of psychology in eight; the department of sociology in four; medical school in two; dental school in one. In two institutions the English department cooperates by giving stories and readings suitable for preschool children; in one the music department, by studies in rhythm; in four, the department of physiology cooperates; and in one, the department of bacteriology. Here is evidenced a fine type of cooperation for the purpose of bringing scientific information in the various fields to bear upon the problems of child guidance and child behavior.

Financing of Nursery Schools

Nursery schools in 5 of the 13 institutions are financed by receipts from fees paid into the department on the basis of the children attending. These are the University of California, Michigan State College, Oregon Agricultural College, and the University of Wisconsin. The University of Wisconsin reports that gifts of small apparatus are received from mothers and that the larger types of apparatus are purchased with the interest money from a memorial fund. The food which is prepared and served to the nursery-school children by the students in nutrition and dietetics, is paid for by the mothers. At Oregon Agricultural College the blanket laboratory fee of $4.50 per student per term covers all courses for home economics majors. The Michigan State College reports that the food for the children in the nursery school is purchased already prepared at wholesale price from the Women's Commons. In the University of California a fee of $10 per month is charged each child attending the nursery school. Among the remaining eight institutions where nursery schools are a part of the laboratory equipment for teaching courses in child care and development the receipts are from fees charged on a "per child" basis, laboratory fees for students taking the course in child development, and the home economics budget.

The student fees range from $1.50 to $20 a quarter; the fees for children from $5 to $10 a month. In seven institutions the fee per child is $5 or less per month. In six the fee is between $6 and $10 per month per child; in one, Oregon Agricultural College, $10 per child is charged for a six weeks' period of instruction in the nursery school. One institution, the University of Minnesota, reports the home economics department closely associated with the Institute of Child Welfare. The home economics department provides the part time of two people on the staff of the institute.

Expenditures for nursery school work in 1927–28 among the 13 institutions maintaining these laboratories for the study of child development were on the whole very small, according to reports from 11 of the 13 institutions. One shows a total expenditure of less than $100; one, between $250 and $300; one, between $400 and $500; two, between $575 and $625; four, between $1,300 and $1,800; one, between $2,500 and $3,000; and one, between $6,500 and $7,000.

Nursery School Staff

The number of members on the staffs of nursery schools varies from 1 to 11. Two institutions report but 1 member; four report 2; three, 4; two, 5; one, 6; and one has 11 resident staff members. In every instance persons serving on the nursery school staff have had special training for their work, either graduate work in child psychology or nursery school education, or special training in child development. Many of the staff are reported to have had home economics training in addition to the other specializations. This is indicative of careful choice of those who are, not only to guide the children under their care, but to instruct parents in regard to child care and development. It appears also that actual home situations are perhaps more closely related to laboratory practice and instruction in child training and development than is the case with any other phase of home economics instruction. It is probable that the same cooperative methods and techniques might be employed profitably in the study of clothing for the family, food for the family, family finance, and family relationships. Less artificial situations in the schoolroom and laboratory should be developed thereby.

The interest that home economics departments in land-grant colleges are taking in child study is shown by the fact that only eight institutions report that no provision is made in the course of four years' work in home economics for any child study. The nursery school occupies the center of interest in this type of education.

Seventeen institutions that do not have nursery schools have various arrangements whereby home economics students may study child development and care. Five give no opportunity for laboratory work or observation, but confine the instruction in this field to discussions and reading on the subject. Several report that visits to local kindergartens and primary grades offer opportunity for stu-

dents to observe child behavior. Others, that the child in the home management house offers the laboratory opportunity to students for practice in child care. Still others report that parents cooperate by permitting students to study their children.

Home Management Houses and Aparments

To give opportunity for students to correlate methods and principles taught in their various home economics courses, home management houses and apartments have been established by divisions of home economics in 32 land-grant colleges. Although a few such laboratories were in existence before 1920, most of them have been set up since this date. The objectives given by all the 32 institutions are well expressed in a report from one where the three chief aims of the work in the home management house are, "First, to provide a home setting for characteristic administrative and technical problems; secondly, to provide a demonstration unit, in which are provided desirable equipment; and in the third place to provide a unit that shall function as a social unit in community relationship."

Two institutions, Iowa State College and Oregon Agricultural College, own more than one home management house. Iowa State College reports three and Oregon Agricultural College two. Most of the home management houses (21) are owned by the institutions and are on the college campus. The valuations of grounds and buildings range from $4,000 to $35,000.

Students occupy the home management house in groups varying in size from 3 to 15. The length of time one group of students remains in the home management house for practice work varies greatly among the 32 institutions. In Montana State College, where five students occupy the house at one time, taking full charge of all the management of the home, the practice period is from three to four weeks. At the University of Minnesota, it is three months. At Utah Agricultural College and the University of Tennessee, the practice period is 12 weeks. In three others, almost this length of time is spent in the practice house. Each home management house or appartment has at least one instructor in residence who lives in the house with the students and supervises the practice activities of the girls. The University of Maine, Louisiana State University, and State College of Washington, each report two supervisors.

Most of the home management houses and apartments are open for the whole of the school year; two institutions, however, report them in use only three months during 1927–28. Three report the houses in use for only five months during that year.

It is the practice of about one-half the institutions maintaining practice houses, to give to the students upon entering, printed or typed outlines giving full details of conditions and requirements of the work which they will undertake. Several institutions submitted copies of these printed forms. Some contain much detail and seem not only to acquaint the student with the main divisions of work in the house, but work out many problems for her. While the use of an outline is valuable in the saving of time and preventing confusion, the detailed directions including menus in certain groupings and classifications according to costs reminds one of the arithmetic book which has the problems worked out for the student. Prob-

ably an outline containing the essential details of position of rooms, equipment, and responsibility, and order of procedure for the work under main or general headings, is all that is necessary. The students themselves, should have a part in planning the division of work, the menus, in fact much that pertains to the life of the girls when in the house. One institution, State College of Washington, begins its detailed plan which is presented to the students before they begin their practice work, by statement of aims of the course, which are: "To apply principles and training in home economics courses to solving the problems of home management for a small group; to develop standards of efficiency that are practical for the homemaker who does her own work; to give opportunity for appreciation of home problems; to give opportunity for getting reliable records and data."

In most of the practice houses, the girls carry on all the housekeeping activities of the average home. Heavy work, such as cleaning, snow removal, and furnace work is done by extra help. Fifteen of the 32 institutions report that the home management houses are used for other purposes than instructional work. Twelve report using it as a demonstration house during better homes week. Most of the institutions report that the home management house is open to visitors at any time and is useful as a demonstration throughout the school year. It would be interesting and significant to know how many visitors there are during the year and how much is being done by the several home economics departments to acquaint homemakers of the community with the work being done in the home management practice laboratories.

The cost of practice work in home management houses is met largely by laboratory fees or fees for board and room which the supervisor and students living in the house pay. But 13 of the 32 report funds to cover costs taken from the home economics budget. Among these, all but one report small sums; this one reports a larger item for the rental of the house. Ten institutions report reimbursements from State and Federal Smith-Hughes funds varying in amounts from $250 to $773. The amounts most often reported are between $350 and $400. Four of the 10 institutions received Smith-Hughes money in 1920; 8 in 1925–26; and 10 in 1927–28.

The total expenditures for home management houses in 11 institutions for which complete figures are available for the years 1920–1928, are shown in Table 11.

TABLE 11.—*Total expenditures for home management houses in 11 land-grant institutions, 1920–21 to 1927–28*

Year	Total	Maximum	Minimum	Average
1	2	3	4	5
1920–21	$24,668	$8,405	$513	$2,243
1925–26	22,313	7,980	225	2,028
1927–28	24,120	6,667	200	2,193

In order that students living in the home management house during the practice period may not be overburdened with the schedule of studies it is lightened and credit given for the home management practice work.

In just how far experience in entertaining, in management of household finance, and housekeeping duties attendant upon everyday life, is valuable to the young woman living with a group of other young women of about the same age, and under the direction of a supervisor, may be estimated in some measure by the reports of its value from all institutions mentioned. In every case, except one, the supervisor or person reporting is most enthusiastic over this method. It is at best an artificial situation, but one which is the best substitute for the home situation that has thus far been worked out. So much human behavior is determined by emotional responses occasioned by situations in which the relationships are so entirely different from this experience among a group of young girls that some of the greatest problems in family life are not even touched in home management houses. Practice in home management houses is valuable, however, in helping the student to find out for herself (and she must find out for herself if the experience is to be valuable), the physical problems and duties attendant upon everyday management of a home. In addition its gives opportunity for her to build attitudes toward home management and capacity for responsibility in these duties under the direction of a trained supervisor.

In order more clearly to approximate the actual home situation and give young women an opportunity to have practice work in child care and feeding, 13 institutions have a small child in the home management house. The Oregon State Agricultural College, University of Minnesota, and Iowa State College report more than one child cared for each year by the students. The children range in age from 3 months to 15 months; the majority are 1 year of age. They are, in most cases, loaned to the departments of home economics by children's homes, and are adopted or returned at the end of the school year. Opinions of members of the home economics staff differ decidedly in regard to the advisability of students caring for little children during their work in the practice house. Some are very enthusiastic and believe such practice gives a much-needed opportunity for students to observe the development of babies of this age, to have experience in caring for, feeding, clothing, and guiding a young child. Those who oppose the practice do so on the grounds that with nursery school facilities available it is not necessary and expensive; that the child is too often regarded as a plaything; and that his development is hampered by too many changes among the persons who care for him. Opponents also con-

tend that fallacious deductions are made under the supposition that such an arrangement simulates home conditions. On the other hand it is maintained that the practice is worth while from the standpoint of the child's physical welfare and as a demonstration of results of proper physical care without consideration of the value in giving young women experience in the care of a little child. From the standpoint of the emotional development of so young a child, the opinion of psychologists is not entirely favorable to the practice. Some studies are now being made to find out, if possible, comparative changes which take place in the child living in a normal home where father and mother, and perhaps brother and sister, are present and those which occur when the child develops in a situation other than that of the normal family group.

In addition to laboratories and special units such as the nursery schools and home management houses devoted exclusively to home economics instruction, certain phases of home economics require experimental and practice work in association with other elements of the institutions. This is notably the case of advanced work in dietetics. Hospitals and medical schools either directly connected with the institution or affiliated more or less informally most frequently serve home economics needs.

Cooperation of Home Economics with Hospitals and Medical Schools

A study of the reports from 42 institutions shows that 7 have made provision for student dietitian practice in local hospitals. They are Washington State College, University of Minnesota, University of Maryland, Iowa State College, Connecticut Agricultural College, University of Hawaii, and the University of California. The State College of Washington reports that hospitals take students at the end of the junior year for summer work to offer insight into hospital dietetics, but that student dietitians go to the East and Middle West for training. The University of Hawaii has a similar arrangement.

Only one institution reports its relationship with a local hospital unsatisfactory. The reason given is the faulty organization of the hospital diet course. Two of the seven report hospital practice work engaged in after graduation; three during undergraduate years; three do not specify time. In only one case is the practice period less than three months; four report it six months in length; one, the University of Maryland, has an arrangement with Johns Hopkins whereby students are at the hospital for a 9-months' practice period.

Eight institutions report arrangements for student dietitian practice with hospitals some distance away. They are Connecticut

Agricultural College, Montana State College, Kansas State Agricultural College, University of New Hampshire, Cornell University, University of Wisconsin, University of Hawaii and the State College of Washington already mentioned. Colorado Agricultural College and the University of Kentucky report students accepted at hospitals in nearby cities, but that no formal affiliation exists.

Of the 42 institutions reporting, 24 have no arrangement for hospital practice. Fourteen of these give the training of hospital dietitians as a secondary aim of home economics education; five as a primary aim.

Though much of the fundamental theory of dietetics can be gained from textbooks and in school laboratories this theory can in no wise take the place of experience in the hospital situation. Sooner or later, all institutions expecting to train effectively professional hospital dietitians must make provision for hospital practice.

Chapter V.—Financing

Objectives maintained as ideals may be ever so carefully worked out and enthusiastically championed but practical realization will depend upon the adequacy of resources devoted to provision of a competent staff and suitable physical facilities. On the other hand, financial resources that should be adequate in amount may fail to serve the needs of the home economics units if poor management results in expenditures that are poorly directed to accomplishment of definite objectives. When objectives themselves are vague, confused, and contradictory no consistent basis or principle of economical financial expenditure is possible and the tendency is to confuse economy with parsimony. Financing the home economics work of an institution has, therefore, two rather distinct aspects, the phase that concerns institutional fiscal policies as they relate to home economics, and the phase that relates to the responsibility of the home economics unit itself for expenditures that are within the control of the head of this unit. Presentation of the facts about fiscal matters can not be separated upon this basis, but the interpretation of any factual situation must usually consider the implication that may be drawn both from the standpoint of institutional policy and from the standpoint of internal administration of the home economics unit. It is the purpose of this examination of home economics financing to present facts concerning budget making, the size of home economics budgets, sources of income, cost accounting, and expenditures that may be significant from the standpoints indicated. A budget plan for expenditures is used by the majority of home economics departments in land-grant colleges. Forty-two institutions give detailed information concerning budget initiation and approval, adjustments within the budget, the checking of bills, and keeping of cost records. In 40 of the 42 institutions reporting, the director of home economics is directly responsible for the initiation of the budget for home economics undergraduate instruction. Three institutions, the University of Missouri, the University of Delaware, and the University of Maryland, report budget committees, composed of members of the home economics staff, cooperating

with the director in budget planning. Sixteen institutions among the 40, report that the heads of various subject-matter divisions within the home economics unit assist by presenting statements of the needs of their departments to the director.

In 21 of the 40, the dean of the college in which the department or division of home economics is situated cooperates in the initiation of the home economics budget. In 22 the president of the institution is also a cooperator. In 11 institutions four different administrative heads are reported to have a part in the initiation of a plan for home economics expenditures. In but two institutions are first plans for a home economics budget made without consulting the department.

The home economics budget is considered by a committee in 29 institutions. In 12 home economics has representation on the committee; in 17 no member of its staff is a member of the committee.

The foregoing data present a picture of complex relationships and responsibilities. The director of home economics and members of her staff serving as department heads within the home economics unit know well the needs of the department. She is or should be in close touch with the financial situation, not only in her department and college, but in the institution as a whole, and should have an important share in shaping the home economics budget with regard to the general development of education within the institution and with regard to development of a unit best qualified to accomplish accepted home economics objectives.

Fifteen of the thirty-nine institutions reporting show the following progression in the approval of the home economics budget. Members of the home economics staff heading subject-matter departments, as clothing and textiles, foods and nutrition, home management, and others, present the financial needs of their several departments to the director, who in turn presents a combined budgetary plan to the dean of the college in which the department or division of home economics is situated. The dean then presents it to the president of the institution. In nine other institutions the director of home economics submits her budget directly to the president. Reports from 15 other institutions present varied steps in budget procedure. In 5 of the 15 the business manager is concerned; in 1 the director of home economics and the dean of the college where the department is situated jointly submit the home economics budget to the dean of the faculty, who then presents it to the president.

One institution reports a conference of deans or directors of all the divisions, previous to the planning of the budget. This would make for understanding of the general financial situation as well as plans of development in different departments. Such a plan lends itself well to small institutions, but might be unwieldy in larger colleges.

Twenty-three institutions report the home economics budget planned for one year only; 20, for two years; 2 for a longer period. A budget planned for more than one year in advance has many

advantages. A budget should do more than present a picture of money needs of the immediate future. To be of larger use, it should show a clear and well-developed plan of educational service. Developed in this way, it will not only act as a guide in the wise use of money by the department, avoiding wasteful expenditures, but will show to the public supporting the institution, the purposes of the various units. In other words, a budget should be a means of avoiding a hand-to-mouth existence. The director of home economics and her staff, because of their close acquaintance with the details of home economics, should be able to interpret its needs in budgetary form more practically than any other agency in the institution.

Amount of Budget

The total budget for home economics work in 22 land-grant institutions in 1915–16 was $343,125. The maximum budget at that time in any one institution was $45,000; the minimum $184. This shows a very great range in amounts of money available for home economics instruction. The same sort of situation is shown in the reports for 1927–28, for which year the total home economics budget for 37 institutions is shown to be $1,625,183. The maximum budget for an institution is $324,695; the minimum, $1,249.

In 1915–16, six, or more than one-fourth of the institutions reporting, were working on budgets of less than $5,000; four, or about one-fifth of those reporting, had budgets ranging from $5,000 to $10,000. But two report between $25,000 and $35,000; and but three show budgets of between $35,000 and $50,000; three institutions report between $10,000 to $15,000.

Among the 35 institutions giving figures on budgets 10 years later, or in 1925–26, only one reports a budget of less than $5,000. Three, or 12 per cent of those reporting, as against 20 per cent 10 years before, show budgets of more than $5,000 but less than $10,000. However, 19 institutions, or approximately 50 per cent, show annual budgets of less than $25,000. Nine institutions report budgets ranging between $25,000 and $50,000; four between $50,000 and $75,000; one between $75,000 and $100,000; and two have budgets of more than $100,000. The maximum home economics budget among institutions in 1925–26 is reported to be $202,883.

In 1927–28, two years later, the maximum home economics budget is shown to be $324,695. One institution, however, is shown still to be working on a budget of less than $5,000. Two, or 8 per cent of the 37 institutions, show for 1927–28 budgets between $5,000 and $10,000; eighteen, or about one-half, show budgets of less than $25,000. The number having larger budgets shows an increase. Eleven now report budgets of more than $50,000, while only seven were in this class for 1925–26. Six of the eleven show budgets ranging from $50,000 to $75,000; two from $75,000 to $100,000; and three, above this figure.

Sources of Income

Because of insufficient data, the facts concerning sources of income could not be studied for the entire group of home economics units. However, 16 institutions were able to furnish information that appears to be fairly reliable. (See Table 12.)

TABLE 12.—*Receipts for home economics undergraduate instruction in 16 land-grant institutions*

Year	Total income	Total from—						
		Federal appropriation	State appropriation	Private funds	Fellowships	Sales and service	Student fees	Other
1	2	3	4	5	6	7	8	9
1915–16	$255,136	$14,951	$221,524	$250	0	$5,513	$11,661	$1,237
1920–21	549,176	36,480	462,251	0	0	13,778	27,160	9,257
1925–26	824,695	52,062	581,522	[1] 23,250	$1,100	99,887	48,975	17,899
1927–28	1,033,009	50,936	755,606	[2] 30,250	600	122,708	54,164	18,745

[1] $23,000 to Cornell from Laura Spellman Memorial Fund of Rockefeller Foundation.
[2] $30,000 to Cornell from Laura Spellman Memorial Fund of Rockefeller Foundation.

Slightly more than 92 per cent of the income for home economics instruction in these institutions was received from State and Federal appropriations in 1915–16; 91 per cent from the same sources in 1920–21; 77 per cent in 1925–26; and 78 per cent in 1927–28. Home economics undergraduate instruction is financed to a greater extent by public funds than is instruction in the land-grant colleges generally. The financial report for 1927–28 covering 52 land-grant colleges shows 59.5 per cent of the cost of undergraduate instruction in these institutions met by income from State and Federal appropriations. Seventy-eight per cent of the cost of undergraduate instruction in home economics in 16 land-grant institutions was provided for by income from these sources. The per cent cost of undergraduate instruction met by both Federal and State appropriations is decreasing.

Among the 22 institutions reporting for 1915–16, but one shows any income from private sources, a sum of $250. Four of the 35 reporting show a total of $24,792; the maximum $23,000, the minimum $250. In 1927–28 among 37 institutions reporting, three show receipts from private funds totaling $41,558. Twenty-three thousand dollars in 1925–26 and $30,000 in 1927–28 represent grants from the Laura Spellman Memorial Fund of the Rockefeller Foundation to the College of Home Economics at Cornell University for research in child development.

The income from sales and services presented by Table 12 for 16 institutions shows considerable increase of income from this item doubtless due to establishment of cafeteria and similar dining service by home economics departments in connection with instruction in institutional management. Incomplete reports of other groups of institutions confirm the fact of increase of this item of income and are accounted for upon the same grounds.

Student fees constitute a very small percentage of the total income for home economics undergraduate instruction. Among 16 land-grant colleges in the year 1915–16, but 4.5 per cent was from this source; in 1920–21, 4.9 per cent; in 1925–26, 6 per cent; in 1927–28, 5.2 per cent. Although low cost to the student is to be expected and is desirable in public higher institutions it is desirable that considerable uniformity of such expense be maintained as between the different units within a single institution. When institutional cost accounting has reached the point where it is able to determine with considerable accuracy the relationships between the actual expense involved in providing education for a single student in each of the specific curricula offered, it may be possible to adjust student fees in different curricula upon some basis proportioned to such cost. This refinement of accounting has not yet been attained with reference to undergraduate work and uniformity of fees within a rather restricted range seems desirable even though the percentage of total cost contributed by the student may thus vary considerably between the different curricula and units.

To carry on an education business as well as other businesses, cost accounts are necessary. In the handling of both bills and cost accounts striking evidence is shown of lack of clerical assistance for home economics or poor organization within the department.

Reports from 41 institutions show that in 31 the heads of home economics units are directly responsible for checking bills. In 4 of these, no assistance is given; in 3 others, the directors are assisted by secretaries and in 18 by other members of the staff. Keeping of cost records for the home economics unit is a much more important matter, one in which the head of home economics should be vitally interested. It is important, therefore, that 24 institutions report that she is responsible for this work. In only three institutions, however, she is assisted by a secretary. In eight institutions, the University of Illinois, Iowa State College, Kansas State Agricultural College, University of Nebraska, Michigan State College, Ohio State University, Oregon Agricultural College, and the University of Wisconsin, a secretary is in charge of this work which permits the head of home economics to devote her attention to interpretation and use of the information thus obtained.

Expenditures for undergraduate instruction in home economics were under two headings: (1) Operation and maintenance showing (*a*) salaries and wages, (*b*) materials and supplies; and (2) capital outlay showing (*a*) equipment and apparatus, and (*b*) replacement of equipment.

Table 13 shows expenditures for these items in 17 land-grant institutions for which complete records are available for the period between 1915–16 and 1927–28.

TABLE 13.—*Expenditures for undergraduate home economics in 17 land-grant institutions*

Year	Operation and maintenance				Capital outlay [1]				Total
	Salaries and wages	Per cent	Materials and supplies	Per cent	Equipment and apparatus	Per cent	Replacement of equipment	Per cent	
1	2	3	4	5	6	7	8	9	10
1915–16	$197,913	84.0	$30,783	13.0	$6,892	2.9	$119	0.1	$235,707
1920–21	412,033	82.5	58,935	11.8	23,684	4.7	4,905	1.0	499,557
1925–26	554,018	85.2	70,004	10.8	18,214	2.8	7,792	1.0	650,028
1927–28	611,675	82.7	66,843	9.0	55,634	7.5	5,856	.8	739,909

[1] Does not include cost of building.

The 17 land-grant institutions represented in Table 13 are not the same as those shown in Table 12. Therefore, no attempt should be made to balance the figures presented by the two tables. It was not possible on account of incompleteness and inaccuracy to assemble enough of the same institutions to show trends in income and expenditures with any degree of accuracy.

More than 75 per cent of the total expenditures for home economics in 17 institutions was for salaries throughout the period 1915–16 to 1927–28. This is considerably above the proportion spent for this item by land-grant institutions as a whole, but it should be remembered that the home economics budget is not charged with many elements of institutional expenditures that must be included in getting similar percentages for the entire institution. For 1927–28, home economics expenditures for materials and supplies was 9 per cent of total expenditures. The capital outlay for equipment and apparatus for home economics in 1927–28 was 7.5 per cent of all expenditures. In these cases, as in the case of salaries, no comparison can be made properly with the figures for institutional expenditures as a whole.

More important than amounts and proportionate distribution of expenditures are the methods used in making allotments of available income to the different subject-matter fields. It is at this point especially that the correlation between financing and objectives should be especially evident.

Among 42 institutions reporting on the methods used for allotting funds to various home economics subject-matter departments, clothing and textiles, home management, foods and nutrition, and others, 25 indicate funds divided according to the requests of the heads of these departments. The majority of the 25 indicate that in so far as possible the allotments for the various departments are equalized. All indicate conferences in staff meetings where the needs of the

departments are discussed and adjustments made when necessary. One institution reports funds allotted following the conferences between deans of other divisions, the president, and comptroller of the institution. Another reports that each department spends first, according to its earned income, and secondly, that any excess is allotted as needs are presented by each department. Another institution, where the earned income basis for the allotment of funds is reported, the amount of laboratory fees paid into the general college fund is used as a gauge of expenditures to be incurred. One institution reports that since no increase in department funds except for research has occurred in the 5-year period previous to 1928, the problem of the director of home economics has been one of following existing allotments.

The occurrence in a number of reports of the expressions, "minimum needs," "most urgent needs," and similar phrases, indicates not only the care with which funds are allotted and used but suggests retarded development and, therefore, curtailment of service.

Expenditures by Subject-Matter Departments

In reports from 41 institutions showing expenditures by subject-matter departments, that is, applied art, foods and nutrition, textiles and clothing, and others, 24 report funds so divided for the year 1927–28; 16 that funds are not subdivided on this basis; 1 that no systematic record is kept. But 3 institutions among the 41 show expenditures by subject-matter departments for 1910–11; 4 for 1915–16; 12 for 1920–21; 22 for 1925–26; and 24 for 1927–28. The practice of keeping records of expenditures by departments seems to be coming into general use, although analysis of the reports shows that figures given under many of the headings do not show the emphasis that the institution is putting upon the subject. For instance, in one institution the equipment and supplies for family life and child development are listed with those purchased for home management. In a number of instances expenditures for applied art and textiles and clothing are grouped. Comparisons have little value, therefore, because of the large number of variable factors and combinations presented.

Table 14 shows the amounts spent, both for permanent equipment and consumable supplies by 10 institutions during 1920–21, 1925–26, and 1927–28, for certain subject-matter departments. Too much weight, however, should not be given to the figures and facts presented by the table. They are indicative rather than conclusive.

TABLE 14.—*Home economics expenditures by subject-matter departments in 10 land-grant colleges*

Item	Household art	Cafeteria and lunch room	Family life and child care	Food and nutrition	Home management	Textiles and clothing	Institutional management	Total
1	2	3	4	5	6	7	8	9
1920–21								
Permanent equipment	$19,051	$87,445	----	$31,958	$14,942	$33,044	----	----
Number of institutions reporting in above figures	6	4	----	8	4	8	6	----
Consumable supplies	$6,692	$21,407	$1,256	$26,364	$4,929	$19,243	$3,047	----
Number of institutions reporting in above figures	6	4	1	8	3	7	5	----
Total for 1920–21	$25,743	$108,852	$1,256	$58,322	$19,871	$52,287	$3,047	$269,378
Per cent of total	10	40	1	21	8	19	1	----
1925–26								
Permanent equipment	$23,398	$73,620	$19,500	$66,504	$25,629	$41,117	$15	----
Number of institutions reporting in above figures	6	4	3	10	5	9	1	----
Consumable supplies	$8,907	$26,873	$5,478	$32,395	$4,743	$22,982	$1,116	----
Number of institutions reporting in above figures	6	4	4	10	6	9	2	----
Total for 1925–26	$32,305	$100,493	$24,970	$98,899	$30,372	$64,099	$1,131	$352,269
Per cent of total	9	29	6	28	9	18	1	----
1927–28								
Permanent equipment	$16,401	$107,236	$22,670	$65,521	$20,558	$34,011	----	----
Number of institutions reporting in above figures	5	----	4	10	6	8	6	----
Consumable supplies	$11,608	$75,521	$6,813	$32,868	$6,164	$22,932	$2,629	----
Number of institutions reporting in above figures	5	----	5	10	6	7	3	----
Total for 1927–28	$28,009	$182,757	$29,483	$98,389	$26,722	$56,943	$2,629	$424,932
Per cent of total	7	43	7	23	6	13	1	----

Included in expenditures for subject-matter departments shown in Table 14, are those for permanent equipment, office furniture, consumable supplies, and salaries. Light, heat, and room are not included. Some institutions included salaries under permanent equipment; others under consumable supplies. Percentages were worked out on the basis of total expenditures for permanent equipment and consumable supplies. In the department of household art, total expenditures decreased from 10 per cent of all subject-matter department expenditures in 1920–21 to 9 per cent in 1925–26 and to 7 per cent in 1927–28. Expenditures for cafeteria and lunch room decreased from 40 per cent of the total expenditures for all departments in 1920–21 to 29 per cent in 1925–26; an increase to 43 per cent is shown for the year 1927–28. The large proportion of expenditures shown for the year 1920–21 undoubtedly may be accounted for by the installation of equipment which was expensive, but which, once installed could be used over a period of years. It

is interesting and significant that the sales from cafeteria and lunchroom service have increased so perceptibly during these years, although the expenses, judging from a study of these 10 institutions, have not increased to any great extent.

Expenditures for equipment and consumable supplies in the department of family life and child development have increased notably since 1920–21, when they were but 1 per cent of the total expenditures. In 1925–26, they constituted 6 per cent of the total; and in 1927–28, 7 per cent. Expenditures for foods and nutrition work remain practically the same, increasing from 21 per cent of the total in 1920–21 to 28 per cent in 1925–26, and decreasing to 23 per cent in 1927–28. Home management department expenditures likewise have remained in about the same proportion. Eight per cent of the total subject-matter department expenditures went into the home-management department in 1920–21; 9 per cent in 1925–26; and 6 per cent in 1927–28. This drop may indicate the change in viewpoint regarding the teaching of home management from one in which the study of household equipment absorbed practically all the time of students to one which considers the economic and management problems to a much larger extent than formerly. Expenditures for the department of textiles and clothing have decreased from 19 per cent of the total in 1920–21, to 18 per cent in 1925–26; to 13 per cent in 1927–28. This may indicate not only that the expensive equipment bought in the earlier year is still in use, but that such equipment is less needed because less attention is given to construction and more to appreciation and selection of textiles and clothing. The figures for institutional management are very small.

Chapter VI.—Courses

When this survey was planned many of the home economics heads and staffs in the land-grant institutions were requested to suggest phases of study that would be of special interest or value to their work. Of the suggestions made those that dealt with courses and curricula were more numerous and more insistent than those that concerned any other aspect of home economics work. Home economics displayed more concern about its offerings than did any other division of the institutions. Since home economics is in process of development this interest is, of course, natural, but the searching nature of the requests for study and the evidence afforded that the home economics staffs are conscious of the intimate relationship between offerings and definition of objectives seem to justify somewhat more detailed presentation of these matters than has been attempted with reference to other divisions of land-grant college activity.

The institutions cooperated so heartily in furnishing information about courses and curricula that a larger amount of detail has been assembled than can be presented in the space and time available. Much of the data must be treated by this report in a rather general and summary fashion. It is hoped, however, that the specific detail collected may be further studied and supplemented by graduate students and others interested in home economics matters. This report will consider in turn methods and means used by the institutions in determining what shall be offered, the number and types of courses listed, the organization of courses into curricula, and finally methods of instruction.

Determination of Offerings

Five points related to determination of what subject matter shall be offered by home economics deserve separate treatment: First, the administrative processes and considerations that determine offerings; second, relationships to previous preparation of entering students; third, prevention of undesirable duplication between college home economics courses; fourth, means used to determine actual content of courses; and fifth, methods adopted to improve the quality of courses.

The development of home economics objectives and the changes in social conditions and subject-matter fields to which home economics instruction must be adapted make especially important the function of determining what shall be offered. This responsibility, subject to institutional confirmation through agencies of control applicable to all divisions, rests upon the head of the home economics unit in the 43 institutions that report upon the subject. In 39 of these institutions she also finally selects and approves the texts that are used. In practice other members of the staff commonly participate actively in curricular reorganization (28 institutions) and in selection of texts (37 institutions).

An important aspect of changes in and extension of offerings is the initiation of new courses. Thirty of the institutions report that responsibility for initiating a new course is shared by other members of the staff with the director of home economics.

It is, of course, common practice for staff members in all the divisions of colleges and universities to suggest new course offerings and in many instances the desire and ability of a staff member to offer a new course are in effect the determining factors in spite of machinery of control set up to pass upon and unify offerings. This sometimes results in curious specializations of courses and multiplication of minute subdivisions in harmony with the personal interests of teachers rather than in response to definite student needs or institutional objectives. It is interesting, therefore, to list the factors involved in the initiation of new courses according to the reports of home economics heads although these considerations may not in fact always be the determining causes to the extent that the record would seem to indicate.

Among the primary factors that lead to the initiation of new courses first place is given by 28 of 39 institutions to State demand for home economics training, especially for the training of Smith-Hughes teachers. Second, is the amount of money available listed by 21 institutions; third, undergraduate student demand cited by 17; and fourth, requests by graduates indicated by 16. Twelve institutions give primary consideration to demands made by the public schools. Twelve also make decisions upon the basis of staff conviction that new courses are needed to create or maintain the prestige of the unit among higher educational institutions; and closely related to this point is the statement of 11 institutions that new instruction is begun in order to conform to the practice in the majority of land-grant colleges. Of somewhat the same order is the reason given by 10 which regard the opinion of the American Home Economics Association as of first importance in determining what new courses shall be offered.

It is perhaps permissible to suspect that institutions that determine the development and growth of their home economics work upon the basis of "authority" rather than upon the basis of their own situations and objectives exercise little leadership in the creation of college home economics standards and service. In this connection it is probably significant that secondary factors mentioned by the home economics reports as determining new offerings include in order of frequency—opinion of the American Home Economics Association, conformity to departments in the majority of land-grant institutions, and prestige of institution. The value of changing courses or curricula at the instigation of organizations or to conform to opinions and standards set up by organized groups is in direct proportion to the soundness of the principles and practices represented by such opinions. It would be unfortunate for home economics development if practice should become conventionalized prior to the best adaptation of means to the accomplishment of well-defined objectives. Inconsistency and change are much less objectionable than consistency and permanence of practices upon a mediocre level.

It is somewhat surprising that a group as keenly interested in the development of its work as is the home economics group should determine its new offerings to so slight an extent upon the basis of scientific analysis of the activities and interests of women. Several institutions report that this is done. Three institutions reported that the staff is continually at work analyzing the needs of girls as a basis for curriculum development and adjustment, but no evidence was submitted to show whether these studies were merely observations or were carefully controlled and systematic investigations. A few institutions report that students make suggestions, but there is little indication of any thoroughgoing attempts to secure student judgment. Certainly such student reaction as is secured does not lead to the fallacious practice of substituting immature and inexperienced opinion for the trained judgment and wider knowledge of the responsible staff.

Ways of Avoiding Duplication of High-School Work

Duplication of high-school work is not only wasteful in the sense that it takes time in college which might be used in other ways, but it acts in a much more destructive way in discouraging the student. Therefore, ways of avoiding such duplication are important. Among 39 of the institutions reporting on the methods used to insure students against duplication of high-school work, 37 show that they are paying considerable attention to the solution of this difficulty. Only one institution reports nothing done to avoid duplication; another that no satisfactory method has yet been evolved. The majority

of institutions use tests or examinations of one sort or another, together with the examination of high-school notebooks, textbooks, visits to high schools, reports from the State department of education relative to approved high schools in the State, and a valuation of high-school courses by a teacher trainer in home economics to avoid repetition of subject matter given in high schools. Five institutions report using a trial and error method, putting all students into the same courses at the beginning of the year, then regrouping them later on according to demonstrated abilities. Four institutions have separate courses for those who have had home economics work in high school. One reports that students presenting home economics credits from accredited high schools are registered in courses carrying less credit.

From the varied ways in which so large a number of departments of home economics in land-grant colleges are working to avoid duplication of high-school work, it is clear that further systematic study of this problem is desirable. In part, solution probably lies in development of research in home economics that will provide subject matter sufficiently advanced to be distinctly separate in type from that offered in secondary schools. Problems of articulating college and secondary offerings in home economics will nevertheless demand adjustment by the colleges upon the basis of present offerings in both units. In this process the obligation rests most heavily upon the college.

Duplication of Subject Matter in College Home Economics Courses

Of somewhat the same character as duplication between high-school and college home economics courses in duplication between courses offered in the college itself. The former is most serious because it indicates that some home economics instruction in college is of secondary grade, but the latter is just as wasteful and especially reprehensible since it testifies that courses under the control of the home economics unit itself are not designed for the accomplishment of definite home economics objectives.

As specialization develops within home economics, with attendant grouping of courses into subject-matter units or departments, with curricula for each, the problem of avoiding duplication of subject matter in various courses becomes increasingly great. The home economics staffs are attacking this matter with considerable energy by means of frequent revision of courses, observation of classes, conferences, and use of course outlines. Probably in part because of the tentative nature of home economics development, the home economics unit displays more interest in and use of these methods than is the case of the older and better established subject-matter fields. In

more than half the institutions reporting the head of the department of home economics personally observes classes as a means of keeping in touch with the content of courses. Thirty-seven institutions report conferences with department heads other than home economics used as a means of avoiding serious duplication. One institution reports using, in the textiles and clothing courses, a list of objectives as a means of avoiding duplication, and adds further that this is the beginning of a plan to be worked out for all subject-matter departments. Another institution reports a similar system in which the course content is arrived at in the first place through conferences of all divisional teachers.

In the majority of institutions reporting, the course outline method is used to keep in touch with current developments in use of subject matter by the different courses.

Among 42 institutions reporting, 39 report that course outlines are required as a means of checking duplication. In 32 institutions the head of the home economics department reviews the outlines for purposes of revision. In 16 of these, the author of the outline also goes over it with the entire home economics staff. Seven institutions report the course outlines reviewed by members of the staff without the assistance of the director; in 13, the director alone does this work.

One institution reports a group of instructors working on general curricula reconstruction, the membership in which is voluntary, and represents about one-half the staff. It is this group which reviews course outlines presented by their authors. Another institution reports conferences of faculty members in each department of the school, where outlines of courses are discussed and duplication thus avoided. Another reports that plans for courses must be accepted by a curriculum committee before the courses are given. In this way, every course outline comes before a committee which has the opportunity and responsibility for comparison and elimination.

The activity and determination thus displayed in the field of course and curriculum control is highly commendable. But it would probably be more effectively and intelligently carried on if it were placed upon the basis of experimental procedure conducted cooperatively by a number of institutions rather than upon the present basis. In this respect is must be acknowledged that home economics differs very slightly from other subject-matter fields and units in higher education institutions.

Determination of Content

A considerable proportion of the institutions that report concerning methods of determining course content indicate that studies of the work of teachers, dietitians, home demonstration agents, dress designers, tearoom managers, homemakers, research workers, and others, form the basis for the special curricula offered to students pre-

paring to enter these occupations. As might be expected, the majority of the 35 institutions offering special courses to train teachers in home economics assert that an analysis of the current situations in teaching home economics is the method for determining what shall be included in these courses. Thirteen of the 14 institutions offering extension curricula state that they use this method of procedure. Twelve institutions give an analysis of the homemaking occupation as the method used in determining the content of various home economics curricula, while 2 mention an examination of department store openings as a way of learning what is needed and, therefore, what should be included in the courses for persons wishing to specialize in commercial work connected with department store activities. In all the reports, the emphasis in the determination of specialization in home economics offerings is placed upon examination of gainful occupations.

But few institutions report that groupings of home economics courses for specialization are made because of common practice in other land-grant colleges, or requirements set up by outside agencies. Eleven is the largest number of institutions that admit that they follow the practice of determining curricular content according to standards set up by organizations and in these cases it is said that this method is followed only with reference to the general home economics curriculum. There is one exception to the latter statement, however, made in the reports from 20 institutions, specifying that the home economics teacher-training curriculum is made up largely in accordance with requirements set up by Federal and other outside agencies.

Conferences of staff members among themselves, and with those of other departments engaged in teaching service courses for home economics are not frequently given as a basis for determining what courses shall be included in the various curricula. This is a practice which will increase as interest in curricular development grows. That standards set up by groups of professional people should determine in some measure the content of home economics offerings, there is no doubt, but needs in the occupations for which the institution is preparing its students must always be considered if curricula are to show life and a high degree of service. It is, therefore, significant that so many institutions assert their allegiance to occupational analysis as a method of determining content; it is perhaps just as significant that no written accounts of studies of this kind made for institutional purposes were submitted in support of protestations of adherence to the principle although a second request for such studies was made. The seriousness and thorough character of the studies reported may be regarded with some skepticism.

Strengthening Offerings

Various methods are used by departments of home economics to strengthen courses which have a tendency to become dilute as regards subject matter. Those named by the institutions are increase in library facilities, more adequate equipment, a greater degree of correlation between basic subjects, adjustment of prerequisites, combination of two or more courses, staff adjustments, and better trained staffs. Forty institutions report using most of the methods named. This indicates that home economics divisions are not only alive to a need for strengthening courses, but aspire to the use of every means at their command to bring their offerings to a high standard.

Three institutions mention dropping weak courses as means of strengthening offerings. Two mention improvement of staff by giving opportunity for graduate study. Two institutions report conferences of home economics staff members among themselves as well as with those of other departments who are giving service courses to home economics students. One institution reports an examination at the beginning of the course, the setting up of objectives for courses by the students and advanced work being done by the present staff.

The dropping of weak courses or combining of two or more courses already weak does not necessarily constitute a strengthening process, but may emphasize the weaknesses and substitute nothing better. Stimulating and constructive courses may best be developed by a determination and delimitation of objectives, by group review of course outlines, by the employment of carefully worked out bibliographies and other guides for reading, and by the use of carefully selected equipment. It is the relationships between library facilities, adequate equipment, and the extent to which these relationships are discovered and employed in service of objectives that will determine in large measure the strength or weakness of courses. There is something clearly wrong with courses which can not be shown to have well-defined and forceful relationships with objectives.

Classification of Home Economics Courses

More than eleven hundred courses in home economics are reported by 40 of the land-grant institutions. In order to deal with this great number of course units and because something of the nature of the work thus becomes evident it is desirable to group them in accordance with several systems of classification. Unfortunately the limitations of this study make it impossible to classify these courses in accordance with some of the categories that would be most enlightening. The data secured do not permit arrangement of the courses according to their purposes in developing skills, knowledge, or atti-

tudes on the part of students. It is also inadvisable to attempt to group them with reference to whether they serve immediately practical vocational functions or are primarily intended to provide means of personal and social growth. Two types of classification may be considered, however, upon the basis of data available; the practice with reference to definition of courses as elementary, advanced, or graduate; and a classification into subject-matter fields corresponding somewhat closely to the departmental divisions ordinarily adopted by home economics units.

Lower and Upper Divisions and Graduate Courses

Higher education in general is confronted by several situations and conditions that are especially important to an area of instruction so clearly in process of development as is home economics: First, the junior college as a separate unit or as an extension of the public high school is developing rapidly. Graduates of these institutions in increasing numbers will demand admission to the home economics unit of the land-grant colleges with the expectation that they may secure their home economics degrees without special inconvenience or material loss of time. In other words, the land-grant college home economics units will be asked with ever-growing insistence that they adjust their specializations to permit graduates of junior colleges to enter them without handicap and to complete their work in two years.

Second, the level of general education in the United States tends to rise more and more commonly beyond the training afforded by the high school. The affiliation of junior colleges with secondary education is indicative. Should home economics not contemplate reconstruction of its curricula in such fashion as to provide for two years of upper division work to which admission may be obtained simply and easily by general junior college preparation? Should its first two years or lower division instruction in home economics not be intended for those who are not able or who do not plan to obtain degrees but who wish to prepare for the intermediate types of life occupations for which training can be given in two years upon the basis of graduation?

Third, although there is a tendency to start serious specialization at the beginning of the third year in college, graduate work is rapidly becoming something still more highly specialized and requiring content and method distinct from those of senior college courses. Is home economics prepared or tending to direct its further development in harmony with these tendencies?

All these situations are of serious import to those who would determine the future trends of home economics growth. This growth must

take place during a period of general educational transition. Shall home economics attempt a long-time program of development looking to the traditional 4-year college superimposed upon the twelfth grade or shall it venture to anticipate general changes in educational conditions that will take place during the next two decades?

Some indication of the degree to which home economics is aware of these problems is afforded by present practice in division of courses offered into lower division courses and upper division courses, and as providing either undergraduate or graduate credit in accordance with the formal classification of the student who takes them.

Eighteen of the colleges report that home economics courses are not classified by separation into lower or upper divisions or designated as elementary or advanced work. Twenty-three, however, make this distinction. One of these, Iowa State College, reports junior and senior colleges with elementary courses grouped in the junior college; advanced in the senior college. Eleven of the institutions showing a graduation in courses and classification according to upper or lower division make the distinction by college years, the elementary courses being those offered during the first and second undergraduate years; the advanced courses those offered during the third and fourth years. One institution, Oregon Agricultural College, reports that elementary home economics courses have no college prerequisites, while those of advanced standing have. The University of Wisconsin reports that home economics courses classified as elementary are begun by a general survey course; those of advanced standing, are built upon this foundation.

Whether this classification is really significant or only a formal and perfunctory one is hard to determine. An indication is afforded, however, by apparent failure on the part of the greater number of institutions to insist upon completion by students of lower division work prior to admission to upper divisional classification, and by failure to impose any penalty in the case of students who neglect lower division work until after such time as they obtain upper division ranking. However, five institutions report that upper classmen who take courses in the elementary or lower division group do so with with less credit than is permitted to lower division students taking the same work. On the other hand, 27 institutions make no such reduction and it seems doubtful in these cases whether the course classification into elementary and advanced groups has any very real significance. Incidentally failure to distinguish between upper and lower levels of courses raises the question concerning the validity of such course prerequisites as may be prescribed within the curricula pursued.

Further evidence that home economics courses are not specifically designed to serve the purposes of instruction upon the different

levels of junior college, senior college, and graduate credit is afforded by the fact that of the 1,162 courses offered for undergraduate credit 743 may be taken also for graduate credit. Only slightly more than one-third are given for undergraduate credit alone. Not only is this the general situation when the total number of courses is considered as a single group, but analysis indicates that in only a few of the specialties does the proportion that the number of courses for undergraduate credit only bears to the total number of courses show more conscious differentiation between graduate and undergraduate work. In only two fields are fewer than half of the courses offered available for both undergraduate and graduate credit, in general home economics courses and in health. In the case of the former group of courses only 35.7 per cent are available for graduate credit. This fact, however, can not be interpreted without reservation as representing more careful definition and development of courses in this area.

General home economics deals on the face of it with the general rather than the specialized aspects of home economics instruction. It would seem doubtful whether courses obviously intended for general and survey purposes should ever carry credit upon a level as specialized as graduate work should be. The second phase of home economics instruction that seems to show a more sound realization of distinction between graduate and undergraduate courses is that of health. Only 25.7 per cent of the health courses offered for undergraduate credit may be used for graduate purposes. This proportion is probably more nearly the one that should prevail, yet in this instance the fact has little bearing upon home economics practice, since the health courses offered in home economics constitute but 3 per cent of the total number of home economics courses.

From such evidence as is afforded by facts of the kind just recorded it seems that graduate work in home economics as is the case in other fields in land-grant colleges that have not highly developed graduate schools, is too largely merely a continuation for a longer period of time of the same sort of work that is offered in the undergraduate years. In other words, there is too little distinction between the nature of undergraduate and graduate work. In this respect home economics does not differ from the practice that has commonly been followed during the developmental period of other subject-matter fields and during the early stages of other new colleges and major divisions. Nevertheless, the matter is one that should receive the careful consideration of home economics leaders. Here, as in other phases of retarded home economics development, the solution lies in greater emphasis upon and provision for research work both in the subject-matter field and in the educational aspects of home economics work.

Further classification of home economics courses upon the basis of the customary departmental subject-matter fields serves to indicate the relative emphasis given to the different subjects by land-grant college home economics units. Table 15 summarizes the facts with reference to this classification and also gives data concerning the undergraduate courses that may carry graduate credit.

TABLE 15.—*Emphasis upon various home economics subject-matter units and development of work in the same shown by relative number of courses and semester hours offered by 39 land-grant institutions*

Subject matter	Number of institutions reporting	Courses		Undergraduate courses			Graduate courses		
		Number	Per cent	Number	Per cent	Semester hours credit allowed	Number	Per cent	Semester hours credit allowed
1	2	3	4	5	6	7	8	9	10
Applied or related art	36	188	16.2	70	37.2	442	118	62.8	123
Extension	9	12	1.0	9	66.7	27	3	33.3	5
Family life and child care	31	53	4.6	19	35.8	118	34	64.2	66
Foods and nutrition	39	341	29.3	87	25.5	983	254	74.5	343
General home economics (survey courses)	19	28	2.4	18	64.3	46	10	35.7	8
Home economics education	22	76	6.5	27	35.5	200	49	64.5	90
Home management	37	102	8.8	46	45.1	276	56	54.9	107
Institutional management	20	68	5.9	32	47.1	169	36	52.9	76
Textiles and clothing	39	259	22.3	85	32.8	684	174	67.2	190
Health	27	35	3.0	26	74.3	69	9	25.7	18
Total		1,162		419		3,014	743		1,026

Examination of the table shows, in so far as number of courses offered is an indication, that the emphasis is upon two fields, foods and nutrition and textiles and clothing. Six hundred, or 51.6 per cent, of the 1,162 courses offered deal with these subjects, of which 341, or 29.3 per cent, are in foods and nutrition and 259, or 22.3 per cent, in textiles and clothing. Next in order of number of courses offered is applied or related art with 188 courses, or 16.2 per cent of the total.

In spite of the fact that Smith-Lever extension work provides employment in the field of home economics to a large number of women only 12 courses in home economics extension, slightly more than 1 per cent of the total number of courses, are offered by the 39 land-grant colleges reporting. Inasmuch as the work of home demonstration agents should require rather intensive technical home economics training in a variety of subject-matter fields it is sometimes thought sufficient to emphasize these aspects of preparation. However, the portion of this survey that deals with the land-grant college extension services shows two things clearly, first, that the demand for home demonstration agents will increase greatly during

the next 10 years, and second, that the training of the present home economics extension field force is inadequate. If to these considerations be added the increasing emphasis upon all forms of adult education and consequent development of methods and techniques appropriate to such instruction, it becomes fairly obvious that home economics may well give greater attention to courses designed for the special training of home economics extension workers.

In the past such courses as have been offered have not been popular, but even cursory examination of the situation reveals many reasons for their failure to appeal to students. In many instances they have been makeshifts, only slightly related to actual work in the field by practice opportunities, and even more commonly the tone of extension leaders in the institutions has been one of minimizing the practical benefits and advantages that may result from formal training for the field. So much reliance has been placed upon common sense, tact, and energy requirements for extension service that the actual possibilities of psychological and personnel management instruction have been seriously neglected. If home economics extension is to be developed to the extent and upon a plane that is desirable, training must be given comparable to that of high-school teachers although of quite a different kind and emphasis.

It is also somewhat disconcerting to discover that the courses that are directly related to health constitute but 3 per cent of the total number of home economics courses offered. While it is true that health and sanitation are treated in other groups of courses from both their public and domestic aspects, it is extremely probable that the small number of courses offered directly upon the subject reflect an actual deficiency of emphasis in home economics work. At no point does home economics have a better opportunity to provide upon a nonmedical plane a very extensive and extremely technical body of scientific, legal, and social training that should create attitudes and interests upon the part of students which will operate throughout their lives to the advantage of personal living and community welfare. It is earnestly recommended that home economics leaders consider the possibility of utilizing subject matter in the fields of health and sanitation to a much greater extent than at present as a means of accomplishing the objectives of home economics defined by preceding paragraphs of this report.

Although not a matter that concerns the classification of home economics courses by subject-matter fields, one further noticeable and perhaps significant characteristic or tendency became very evident in the examination of the courses listed by home economics departments for the purposes of this survey. This was the frequency with which the word "selection" was included in the course

titles. Food selection, clothing selection, selection of household textiles and furnishings, and similar titles show the interest being taken in presenting a larger number of courses on this basis. Specialization in industry has taken over in such large part the construction of the materials necessary to clothe, house, and feed the family, that the problem of the homemaker is, and will increasingly be, one of selection. It is becoming more and more the case that choice of commodities and activities must be based upon highly technical knowledge if it is to be intelligent and not simply in response to attractively illustrated advertising.

Chapter VII.—Curricula

A curriculum is merely the bringing together of various elements of instruction so related to each other and to the accomplishment of a common purpose that a definite educational objective may be attained. A curriculum is in effect a planned rather than a chance means to reach a specific desirable educational outcome. Merely to group together a series of courses haphazard and without reference to a purposeful result is not making a curriculum. The whole significance and purpose of curriculum making lies in the assembly and use of materials purposefully. Like a road a curriculum leads from one place to another; its terminal must be definitely selected. A single curriculum can not serve a half dozen major objectives.

It becomes important, therefore, to discover how home economics sets about constructing its curricula, what objectives are set up by each, and how well the specific selection and groupings of elements are adapted to the accomplishment of these objectives.

In discussion of methods of determining offerings some of the administrative processes adopted for the construction of home economics curricula have been presented. The arrangement of these offerings into distinct curricula is usually not rigidly prescribed throughout. Part may be required, part freely elective, or part may be elective within a limited range of choice. Many kinds of combinations and special adjustments are in practice. Thus a basic or core group of courses extending over a 4-year period (sometimes mistakenly referred to as a curriculum) may be prescribed to which various free or group electives may be attached for the purpose of attaining specialized objectives of various kinds. Or the basic courses may be grouped in the first two years and upon these various specialized curricula of two years may be constructed. Under either of these types of course grouping, what the student gets is a curriculum only in so far as the grouping and the succession represent a planned and purposeful means to the accomplishment of a definite educational end.

How many curricula do the various home economics units set up and which ones are most generally offered? Without attempting to determine at this point whether what the institutions call curricula

satisfy the definition given or are in fact something else, we find the following situation. Five institutions report but one curriculum, that in general home economics. Eleven report 2 curricula, 1 of which in 10 instances is the general home economics curriculum and in 9 cases is the curriculum in teacher training. Three curricula are offered by each of 10 institutions; 4 by 7; 5 by 4; 6 by 1; 7 by 3; 8 by 2; and 10 by 1. Three-fourths of all the institutions reporting offer four or fewer curricula.

It would appear, therefore, upon the face of these returns that the land-grant colleges are in most instances attempting to arrange their work into articulated groups and programs for the accomplishment of a limited number of major objectives. However, this apparent conclusion must be considerably modified in view of the variety of major objectives reported in other portions of the survey returns. It appears rather that in many instances so-called curricula are in fact not groups of courses coordinated for the accomplishment of definite objectives. It seems that assemblies of practically all courses available are frequently designated by the term "curricula" merely upon the basis of the predominance of courses in a specific field. Further examination of detail with reference to certain curricula for which data were furnished will afford additional evidence upon this question.

The following list of curricula given by the institutions will serve to indicate those most generally offered and will also provide a convenient order for successive discussions of each. The curriculum in general home economics is listed by 36 institutions; that in teacher training by 35; foods and nutrition by 20; textiles and clothing by 10; institutional management by 15; extension by 14; and applied or related art by 6.

Various others mentioned by from one to three institutions are curricula in physical education, family life, bacteriology, hospital dietetics, research in textiles and clothing and in clothing and art, hotel management, and home management. But these are so infrequently offered that they are of little significance in a study of general practice in home economics curriculum differentiation.

General Home Economics

General home economics is the curriculum named by more institutions than any other. It will be examined, therefore, in considerable detail in order to determine: First, whether general agreement has been reached as to its objectives; second, whether general agreement has been reached concerning the proportion of the total time that should be allowed to required and elected work; and third, whether general agreement has been reached as to its content.

Of the 36 institutions that list the objectives of their general home economics curricula, 33 name home making, thus indicating that in three institutions at least other objectives control this curriculum apparently to the exclusion of home making. Twenty-seven report that general culture is an objective. Although this is a somewhat different objective than the home-making one, the two are not inconsistent. It is of little significance, therefore, that many of the same institutions list these two objectives for a single curriculum. But additional items listed, such as teaching by 12 institutions, hospital-dietetics work by 8, extension by 5, social service and business each by 3, and research by 2, indicate clearly a somewhat amazing confusion of objectives assigned to a single curriculum. It is fairly obvious that several of these objectives are so directly vocational and specialized that a curriculum designed to prepare for home making or even for general culture must of necessity be inappropriate to the attainment of such different purposes. The conclusions that may be drawn are: First, that many home economics units have no clear conception of the functions of a curriculum. Second, that objectives are not clearly defined by many home economics units. Third, that home economics has not reached the degree of common agreement concerning the major objectives of general home economics as would seem to be indicated by the frequency with which home making and general culture are stated as objectives.

Division of time between requirements and electives in the general home economics curriculum.—Quite apart from unity of objectives in the general home economics curriculum it might be expected that a certain degree of agreement would have been reached with reference to the proportionate distribution of the time given in this curriculum between prescriptions in home economics and the sciences and humanities and electives permitted. It was possible from the returns made by the home economics units to compile this information for the general home economics curriculum in only 15 institutions. The results of this compilation are given in Table 16. The ranges shown by the table are significant. The University of Wisconsin requires that 15 per cent of the total requirements for graduation be taken in home economics subjects, while the University of Missouri requires 39.3 per cent, more than twice as large a proportion. However, 9 of the 15 institutions show a range within very narrow limits from 23 per cent to 28 per cent of the total. To the sciences and humanities one institution demands that students give 33 per cent of their credit hours while another requires 65 per cent. The intermediate steps between these extremes are fairly regular. The proportion of the total time allowed for electives shows a still wider range. One institution allows only 10.8 per cent while another per-

mits 51.7 per cent of the total number of semester hours required for graduation to be elected. However, 10 of the 15 institutions allow their students to elect from approximately 20 to 30 per cent of the total required hours.

TABLE 16.—*General home economics curricula in 15 land-grant institutions*

Institution	Number of semester hours						
	Required for first degree	In strictly home economics subjects	Per cent	In science and humanities subjects	Per cent	In elective	Per cent
1	2	3	4	5	6	7	8
Alabama Polytechnic Institute	144	47	32.6	63	43.7	34	23.7
Colorado Agricultural College	160	42	26.2	88	55	30	18.8
Connecticut Agricultural College	120	30	25	60	50	30	25
Georgia State College of Agriculture	140	36	25.7	86	61.4	18	12.9
University of Illinois	130	31	23.8	62	47.6	37	28.6
Kansas State Agricultural College	128	37	28.9	65	50.7	26	20.4
University of Maine	140	52	37.8	58	41.4	30	20.8
Michigan State College	132	41½	31.8	59⅓	44.6	31⅓	23.6
University of Minnesota	126	44⅓	34.9	57⅔	45.2	24	19.9
University of Missouri	122	48	39.3	46	37.7	28	23
University of Nebraska [1]	125	32	25.6	54	43.2	39	31.2
University of Nevada	128	34	26.5	76	59.3	18	14.1
Ohio State University	126⅔	32	25.3	70⅔	55.5	24	19.2
University of Vermont	140	33	23.5	92	65.7	15	10.8
University of Wisconsin	120	18	15	40	33.3	62	51.7

[1] General homemaker's curriculum.

In this connection it is also interesting to examine the period in the general home economics curriculum when elections are permitted. The following table was compiled from statements made for the purposes of the land-grant college survey.

TABLE 17.—*Free electives in general home economics*

Year	Number of institutions reporting	Number of semester hours allowed							
		0	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	Maximum by any one institution
1	2	3	4	5	6	7	8	9	10
First	25	14	5	5	1	0	0	0	[1] 10
Second	29	8	9	6	4	0	2	0	[2] 21
Third	28	1	3	7	8	7	1	1	[3] 26
Fourth	30	0	0	4	6	12	8	0	[4] 20–32
									[4] 24⅔

[1] University of Nebraska.
[2] University of Wisconsin.
[3] Connecticut Agricultural College.
[4] North Dakota Agricultural College.

Fourteen out of 25 allow no free electives during the first year, 8 extend the restriction through the second year, and 1 permits none in the third year. Aside from the tendency to restrict electives during the first year the figures show little uniformity of trend.

It is apparent that the general home economics curricula in the land-grant colleges show very little agreement as to what part of the total should be in home economics subjects, what part in the sciences and humanities, and what proportion left for free electives. In so far as uniformity of such distribution is a feature that might be expected in a curriculum with common standards throughout the United States it is evident that the general home economics curriculum does not satisfy this measure of judgment.

Content of General Home Economics Curricula

Statements of objectives may be confused and formal regulations in regard to distribution of time between requirements and electives may vary, but the courses that constitute the general home economics curriculum might be so uniform as to result in a considerable degree of similarity between these curricula in the different institutions. It is desirable, therefore, to apply this test to the actual offerings of the general home economics curriculum in order to determine whether from the standpoint of content this curriculum has a common meaning in the land-grant colleges.

The general reader will find the detail of such a study extremely uninteresting reading, but concrete presentation is so essential to understanding of the actual situation that it is believed home economics staffs will desire even more data than can be given by this report.

The information provided by 35 institutions was sufficiently consistent and exact to justify use in the tabulation of the hours required in the various subjects presented in Table 18 and other portions of this report. These variations have been carefully considered and are due to factors that do not affect the validity of the conclusions drawn or the trends indicated.

TABLE 18.—*Number of semester hours required in general home economics curricula in land-grant institutions*

Institution	Chemistry					Biological sciences					Other natural science				
	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
University of Arizona	8	6	0	0	14	----	----	8	----	8	----	----	4	----	4
University of Arkansas	8	6	0	0	14	----	6	4	----	10	----	----	----	----	----
Colorado Agricultural College [1]	10	10	0	0	20	9	----	9	----	18	----	5	----	----	5
Connecticut Agricultural College	3	7	0	0	10	----	----	4	----	4	----	----	4	----	4
University of Delaware	6	6	0	0	12	----	6	6	----	12	----	3	----	----	3
Georgia State College of Agriculture	8	0	6	0	14	3	----	3	----	[2]6	----	8	----	----	8
University of Idaho [1]	0	8	----	----	----	----	----	----	----	----	----	----	----	----	----
University of Illinois	10	5	0	0	15	----	5	----	----	5	----	----	----	----	----
Iowa State College	5⅓	6⅔	4	0	16	----	2	7⅓	----	9⅓	2	----	----	----	2
Kansas State Agricultural College	5	10	----	----	15	----	13	3	----	16	4	----	----	----	4
University of Kentucky	10	4	----	----	14	----	8	----	3	11	----	----	----	----	----
University of Maine	8	8	3	----	19	----	8	5	----	13	----	----	5	----	5
University of Maryland [1]	8	4	----	----	12	----	----	7	----	7	----	----	4	----	4
Massachusetts Agricultural College [1]	5.3	2	----	----	7.3	2.7	6	----	----	8.7	----	----	2	----	2
Michigan State College	8	2⅔	----	----	10⅔	----	5⅓	----	----	5⅓	----	2⅔	----	----	2⅔
University of Minnesota	8	4	10⅔	----	22⅔	6	6⅔	----	----	12⅔	3⅓	----	----	----	3⅓
University of Missouri	5	3	----	----	8	10	8	----	----	18	----	----	----	----	----
Montana State College	9	8⅔	----	----	17⅔	6	6	----	----	12	----	----	3⅓	----	3⅓
University of Nebraska	8	----	----	----	8	----	----	----	----	----	----	----	----	----	----
University of Nevada	----	6	4	----	10	3	----	6	----	9	----	4	----	----	4
Cornell University	6	4	3	----	13	18	3	----	----	21	----	6	----	----	6
North Dakota Agricultural College	8	----	----	----	8	----	----	----	----	----	----	----	----	----	----
Ohio State University	6⅔	6⅔	----	----	13⅓	6⅔	6⅔	3⅓	----	16⅔	----	3⅓	----	----	3⅓
Oklahoma Agricultural and Mechanical College	6	3	----	----	9	----	4	----	----	4	----	----	----	----	----
Oregon Agricultural College [1]	6	----	----	----	6	----	2	----	----	2	----	----	----	----	----
Pennsylvania State College	6	5	----	----	11	2	2	4	----	8	----	3	----	----	3
Rhode Island State College [1]	----	6	----	----	6	3	7	3	----	13	----	----	----	----	----
University of Tennessee	8	----	----	----	8	----	8⅓	----	----	8⅓	----	----	----	----	----
University of Vermont [1]	10	6	3	----	19	2	8	7	2	19	----	----	----	----	----
Virginia Agricultural and Mechanical College	8⅔	1⅓	5⅓	----	15⅓	2	2	4	----	8	----	4	----	----	4
State College of Washington	6	----	----	3	9	----	----	4	----	4	----	----	----	----	----
University of Wisconsin	10	----	----	----	10	----	----	----	----	----	----	----	----	----	----
University of Wyoming [1]	8	3⅓	----	----	11⅓	----	12	----	----	12	----	----	----	----	----

Institution	Psychology					Sociology					Political science				
	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours
1	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
University of Arizona	0	0	3	0	3	----	----	3	----	3	8	6	----	----	14
University of Arkansas	----	3	----	----	3	----	----	3	----	3	----	3	----	----	3
Colorado Agricultural College [1]	----	----	5	----	5	----	----	----	----	----	----	----	----	3	[2]9
Connecticut Agricultural College	----	----	----	----	----	----	----	----	3	3	6	----	6	6	18
University of Delaware	----	----	----	----	----	----	----	----	3	3	6	----	----	6	12

[1] No teacher-training curricula.
[2] Includes hours "not set" in any particular year—but required.

TABLE 18.—*Number of semester hours required in general home economics curricula in land-grant institutions*—Continued

Institution	Psychology					Sociology					Political science				
	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours
1	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Georgia State College of Agriculture															
University of Idaho [1]		6			6			4		4	2	6			8
University of Illinois								3		[2] 9					
Iowa State College										3					3
Kansas State Agricultural College		2	2		4			2		2		6			6
		3			3						1		3	6	10
University of Kentucky			6		6				3	3			6		6
University of Maine										3					6
University of Maryland [1]											6				6
Massachusetts Agricultural College [1]									2	2		6	2	3	11
Michigan State College					2⅔					2⅔					8
University of Minnesota		4	2		6		2			2			3⅓	2	5⅓
University of Missouri			3		3			5		5			5		5
Montana State College		2			2				2	2				4	4
University of Nevada		3			3						6		6		12
Cornell University													5		5
North Dakota Agricultural College	2⅔	2			4⅔	⅔		2		2⅔			4	2⅔	9⅓
Ohio State University	3⅓				3⅓			3⅓	2	5⅓				3⅓	3⅓
Oregon Agricultural College [1]			2		2		2	6⅔		8⅔			6		6
Pennsylvania State College			6		6				3	3				6	6
Rhode Island State College [1]			3		3							3	3		6
South Dakota State College			4⅔		4⅔				3⅓	3⅓		2	3⅓		5⅓
University of Tennessee		4			4		2			2	6		4	4	14
University of Vermont [1]			6		6									6	6
Virginia Agricultural and Mechanical College		2	1⅓		3⅓		1⅓		3⅓	4⅔		4	4	4	12
State College of Washington					4										10
West Virginia University			5		5			3	3	[2] 8	6		3		12
University of Wyoming [1]			2		2				6	6			4		6

Institution	Education					English					Other languages				
	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours
1	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
University of Arizona	6	6			12	6	6			12					
University of Arkansas						6	6			12					
Colorado Agricultural College [1]						10	4			14		10			10
Connecticut Agricultural College			3		3	6	6			12					
University of Delaware						6	6			12					
Georgia State College of Agriculture		6			6	6	6			12					
University of Idaho [1]		5	3	7	15	6	4			10					
University of Illinois						6				8					
Iowa State College						6	2	2		10					
Kansas State Agricultural College						6	6			12			6	3	9

[1] No teacher-training curricula.
[2] Includes hours "not set" in any particular year—but required.

TABLE 18.—*Number of semester hours required by general home economics curricula in land-grant institutions*—Continued

Institution	Education					English					Other languages				
	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours
1	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
University of Kentucky						6	5			11					
University of Maine						6	6			12					
University of Maryland [1]						6				6	6				6
Massachusetts Agricultural College [1]			3.3	6	9.3	6	6			12	6				6
Michigan State College						8				[2] 10⅔					8
University of Minnesota			4	7⅓	11⅓	6	2	2		10					
University of Missouri						10				10					
Montana State College						6	10			16					
University of Nebraska						4				[2] 10					
University of Nevada			2			6	4			10	6				6
Cornell University						6				6					
North Dakota Agricultural College			2⅔	2	4⅔	6				6	8	8			16
Ohio State University						3⅓	3⅓		3⅓	10					
Oregon Agricultural College [1]	⅔				⅔	8	6			14					
Pennsylvania State College						12				12					
Rhode Island State College [1]			2		2	6		5	5	16	6	6			12
University of Tennessee				4	4	6	6			12	6	6			12
University of Vermont [1]			3	6	9	6	6			12	6	6			12
Virginia Agricultural and Mechanical College	3⅚				3⅚	6	6	1⅓	3⅓	16⅔					4
State College of Washington						4				[2] 8					
West Virginia University						6	4			10					
University of Wisconsin						6	2			8	8				8
University of Wyoming [1]						6				[2] 12	6	6			12

Institution	Mathematics		Applied art and design					Physical education				
	1 year	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours
1	47	48	49	50	51	52	53	54	55	56	57	58
University of Arizona			4		3		7	6	2	3		11
University of Arkansas			6	3		2	11	4	2			6
Colorado Agricultural College [1]	5	5	2	3			5	2	2	4		8
Connecticut Agricultural College			3	5			8	2	2			4
University of Delaware			6				6	7	6			13
Georgia State College of Agriculture			4	4	2		[2] 29	3	3		4	10
University of Idaho [1]			4	2	4	2	12	2	2			4
University of Illinois			4				4	3	2			5
Iowa State College			4	4		2	[2] 14	1⅓	2⅓			3⅔
Kansas State Agricultural College			5		1		6	3	1		3	7
University of Kentucky			4	3			7	1.4	1.4			2.8
University of Maine			5½		2⅞	2½	10⅞			3		3
University of Maryland [1]				6		3	9	2	4			6
Massachusetts Agricultural College [1]	6	6		2			2	3.3	5.3			8.6
Michigan State College			2⅔	1⅓			4	2⅔	2			4⅔

[1] No teacher-training curricula.
[2] Includes hours "not set" in any particular year—but required.

TABLE 18.—*Number of semester hours required by general home economics curricula in land-grant institutions*—Continued

Institution	Mathematics		Applied art and design					Physical education				
	1 year	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours
1	47	48	49	50	51	52	53	54	55	56	57	58
University of Minnesota			4	2		5⅓	11⅓					
University of Missouri			4		5		9	1	1			2
Montana State College			4⅔		6⅔		11⅓	6⅔	2	6⅔		15⅓
University of Nebraska								2	2			4
University of Nevada			4				4	3	1			4
Cornell University			3				3	2	2			4
North Dakota Agricultural College			4				4	1⅓	1⅓			2⅔
Ohio State University			3⅓		5⅓		8⅔	2⅔	2			4⅔
Oklahoma Agricultural and Mechanical College			4			3	7	2	2			4
Oregon Agricultural College [1]			6⅔			2	[2] 10⅔	3⅓	2	1	1	7⅓
Pennsylvania State College			4	2	1		7	3	2	1		6
Rhode Island State College [1]			3	3	3		[2] 12	2	2	2	2	8
South Dakota State College				8⅔			8⅔	⅔	⅔		2	3⅓
University of Tennessee			2	2	2		6	5⅓				5⅓
University of Vermont [1]			5				5	3	2			5
Virginia Agricultural and Mechanical College		4	3⅓	4⅔	2		[2] 11	⅔		1⅓		2⅔
State College of Washington				2			[2] 4	1	1	1		3
West Virginia University			4		6		10	2	2			4
University of Wisconsin			3		4		7					
University of Wyoming [1]			8		2		10	4⅔	4			8⅔

Institution	Agriculture		Foods and nutrition					Clothing				
	1 year	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours
1	59	60	61	62	63	64	65	66	67	68	69	70
University of Arizona				6		3	9	3	3	2		8
University of Arkansas			3	3		6	12	3	3			6
Colorado Agricultural College [1]	5	5		5	11		16	2			3	5
Connecticut Agricultural College			4	6	4		14		8			8
University of Delaware			3	3	6		12	3	3			6
Georgia State College of Agriculture				6	3		9	4				4
University of Idaho [1]				3	6	6	15	4			4	8
University of Illinois				8			[2] 12				4	4
Iowa State College			4		2⅔	2	8⅔		2	2	2⅔	6⅔
Kansas State Agricultural College			3	5	3	5	16	2	3			5
University of Kentucky			5	8	4		17	3	2			5
University of Maine				7	5		12	5¼		4		9¼
University of Maryland [1]				6	3		9		3	4		7
Massachusetts Agricultural College [1]	2	[2] 6		2	6.6		8.6		4	1.3	3.3	8.6
Michigan State College				8			8	5⅓	1⅓			6⅔
University of Minnesota				6⅔	10⅔	4	21⅓	2	6	2		10
University of Missouri				6	9		15		6		6	12
Montana State College				6⅔	6⅔		13⅓	4	2	2⅔		8⅔
University of Nevada				7	4	5	16		4	3		7
Cornell University			3	5	5	1	14	3				[2] 5
North Dakota Agricultural College			2	2	2		6		4	2		6
Ohio State University				6⅔	3⅓		10	4⅔		3⅓		8
Oklahoma Agricultural and Mechanical College			5	2	12	3	22	5	2	4	6	17
Oregon Agricultural College [1]				6			6		4			4
Pennsylvania State College			3	6	2		11	5	3			[2] 14

[1] No teacher-training curricula.
[2] Includes hours "not set" in any particular year—but required.

TABLE 18.—*Number of semester hours required by general home economics curricula in land-grant institutions*—Continued

Institution	Agriculture		Foods and nutrition					Clothing				
	1 year	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours
1	59	60	61	62	63	64	65	66	67	68	69	70
Rhode Island State College [1]	----	----	----	6	5	----	11	6	----	6	----	12
South Dakota State College	----	----	5⅓	3⅓	11⅔	2⅔	23	4⅔	4⅔	2	----	11⅓
University of Tennessee	----	----	4	4	----	4	12	4	2	4	----	10
University of Vermont [1]	----	----	----	6	6	----	12	3	----	3	----	6
Virginia Agricultural and Mechanical College	4	[2] 8	3⅓	3⅓	2	----	8⅔	3⅓	3⅓	4	----	10⅔
State College of Washington	----	----	----	----	24	----	----	----	----	----	----	----
West Virginia University	----	----	----	8	4	----	[2] 18	4	3	3	----	[2] 13
University of Wisconsin	----	3	----	----	----	----	3	----	3	----	----	3
University of Wyoming [1]	----	----	----	2⅔	8	----	10⅔	2	----	6	----	8

Institution	Textiles					Housing					Home management				
	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours
1	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
University of Arizona	----	----	3	----	3	----	----	3	----	3	----	----	----	6	6
University of Arkansas	2	----	----	----	2	----	----	2	2	4	----	----	2	4	6
Colorado Agricultural College [1]	----	----	2	----	2	----	----	----	5	5	----	----	----	2	2
Connecticut Agricultural College	3	----	----	----	3	----	----	3	----	3	----	----	----	----	----
University of Delaware	3	----	----	----	3	----	----	----	----	----	----	----	6	----	6
Georgia State College of Agriculture	2	----	----	----	2	----	2	----	----	2	----	----	----	6	6
University of Idaho [1]	2	----	----	----	2	----	----	----	----	----	----	----	----	----	----
University of Illinois	----	----	----	----	[2] 3	----	----	----	----	[2] 3	----	----	----	3	3
Iowa State College	2	----	----	----	2	----	6	----	----	6	----	1⅓	----	4	5⅓
Kansas State Agricultural College	----	----	3	----	3	----	----	----	----	----	----	----	3	----	3
University of Kentucky	2	----	----	----	2	----	3	----	----	3	----	----	----	5	5
University of Maine	2	----	----	½	2½	----	----	----	5	5	¼	1	⅛	4½	6⅝
University of Maryland [1]	----	----	----	----	----	----	----	----	----	----	----	----	2	5	7
Massachusetts Agricultural College [1]	----	----	5.3	----	5⅓	----	----	1.3	----	1.3	----	----	----	3.3	3.3
Michigan State College	2	----	----	----	2	----	----	2⅔	2⅔	5⅓	----	----	5⅓	4	9⅓
University of Minnesota	3⅓	----	----	----	3⅓	----	----	----	3⅓	3⅓	----	----	----	4	[2] 6
University of Missouri	----	----	----	----	----	----	----	----	----	[2] 2	----	----	----	4	4
Montana State College	2	----	----	----	2	1⅓	----	5⅓	----	6⅔	----	----	----	4	4
University of Nevada	----	2	----	----	2	----	----	----	5	5	----	----	----	2	2
Cornell University	----	----	----	----	[2] 1	----	----	----	----	[2] 2	----	----	----	9	9
North Dakota Agricultural College	1⅓	----	----	----	1⅓	----	----	----	----	----	----	----	2	1⅓	3⅓
Ohio State University	2	----	----	----	2	----	----	3⅓	----	3⅓	----	----	----	3⅓	3⅓
Oklahoma Agricultural and Mechanical College	----	2	----	----	2	----	3	4	----	7	----	----	3	8	11
Oregon Agricultural College [1]	----	2	----	----	2	----	----	----	----	----	----	----	----	3⅓	[2] 5⅓
Pennsylvania State College	----	----	----	----	----	----	----	----	3	3	----	----	----	3	3
Rhode Island State College [1]	----	----	----	----	----	----	----	----	4	4	----	----	----	3	[2] 6
South Dakota State College	2⅔	----	----	----	2⅔	----	----	----	4⅓	4⅓	----	----	6	----	6
University of Tennessee	2	----	----	----	2	----	----	4	----	4	----	----	----	4	4
University of Vermont [1]	----	----	3	----	3	----	2	----	----	2	----	----	4	----	4
Virginia Agricultural and Mechanical College	----	----	----	----	----	----	----	5⅓	----	5⅓	----	----	----	----	----
West Virginia University	----	----	----	----	----	----	----	6	3	9	----	----	----	----	----
University of Wisconsin	----	----	----	----	----	----	----	4	----	4	----	----	----	4	4
University of Wyoming [1]	2⅔	----	----	----	2⅔	2	----	----	2	4	1⅓	----	----	4	5⅓

[1] No teacher-training curricula.
[2] Includes hours "not set" in any particular year—but required.

TABLE 18.—*Number of semester hours required by general home economics curricula in land-grant institutions*—Continued

Institution	Institutional management					Family life					Total semester hours for first degree
	1 year	2 years	3 years	4 years	Total semester hours	1 year	2 years	3 years	4 years	Total semester hours	
1	86	87	88	89	90	91	92	93	94	95	96
University of Arizona									2	2	124
University of Arkansas								2		2	132
Colorado Agricultural College [1]								2	3	5	160
Connecticut Agricultural College									3	3	140
University of Delaware								3		3	120
Georgia State College of Agriculture									2	2	140
University of Idaho [1]											128
University of Illinois											130
Iowa State College									4	4	136
Kansas State Agricultural College											128
University of Kentucky											133.4
University of Maine								3	½	3½	140
University of Maryland [1]									5	5	132
Massachusetts Agricultural College [1]						1.3			2	3.3	93.3
Michigan State College								4	5⅓	9⅓	132
University of Minnesota								2		2	126
University of Missouri									3	3	122
Montana State College								2		2	141
University of Nebraska											125
University of Nevada									2	2	128
Cornell University											71–77
North Dakota Agricultural College								1⅓		1⅓	136
Ohio State University								3⅓	3⅓	6⅔	126⅔
Oklahoma Agricultural and Mechanical College		2	3		5	4	4	3	8	19	130
Oregon Agricultural College [1]									2	2	128
Pennsylvania State College									3	3	126
Rhode Island State College [1]							1			1	136
South Dakota State College									2	2	136
University of Tennessee								2	2	4	132
University of Vermont [1]						2			4	6	140
Virginia Agricultural and Mechanical College							2⅔			2⅔	144
State College of Washington											128
West Virginia University											128
University of Wisconsin						1			4	5	120
University of Wyoming [1]		2⅔			2⅔				2	2	126

[1] No teacher-training curricula.

For the sake of avoiding exceptional terminology and relatively insignificant variations the plan was adopted of indicating requirements in certain especially significant specific subjects and in certain groupings of related subjects. The classifications thus chosen were: Chemistry; the biological sciences, including bacteriology, biology, botany, entomology, histology, genetics, physiology, and zoology; other natural sciences, including physics; psychology; sociology; other social sciences, including economics and history; education; English; other language both modern and ancient; mathematics; applied art and design; physical education; agriculture, including all those technical applications included in the college of agriculture

that are not specifically and clearly covered by other classifications; foods and nutrition; clothing; textiles; housing; home management; institutional management; family life; and extension. It is fully recognized that it may be very significant whether some one or another subject included in several of these group classifications is given. For instance, in the biological science group whether the work consists of elementary general biology or genetics. The facts are therefore summarized but detailed consideration would not materially strengthen the demonstration of subject-matter trends in the general home economics curriculum and might serve to still further confuse the presentation of what at best is a very complex body of facts. The requirements in the more important of the subject-matter fields presented by the table will be considered in turn.

Chemistry.—With the exception of two institutions, general chemistry is required by all institutions in the first year. The hours vary from 3 to 10. One-half the institutions require eight or more hours of general chemistry in this year. Organic chemistry is generally required in the second year. The number of hours varies from 2 to 10 among 24 institutions. One-half the institutions requiring this advanced chemistry include more than six hours. The usual combination of chemistry requirements, however, in this curriculum is general, organic, and physiological. This grouping occurs among 11 institutions. Seven institutions require household chemistry. The hours vary from two-thirds to six. In the case of the institution requiring six hours, this phase of chemistry is the only course required in addition to the six hours of general chemistry in the first year. Eight institutions require courses in quantitative or qualitative chemistry.

The total number of semester hours of chemistry required shows a wide range, from 6 at one institution where only general chemistry is required in this curriculum to 20.

General chemistry is taught in the college of arts and science in 24 of the institutions reporting, and in all but one by the department of chemistry. Organic chemistry is likewise taught by the department of chemistry in most institutions reporting this requirement. Household chemistry is taught by the department of chemistry in the college of arts and science at three institutions. The other institutions requiring household chemistry for this curriculum do not specify the department or college teaching the courses. Physiological chemistry in three instances is taught by the department of home economics. At one institution the college of medicine gives this course for the home economics students. Data do not reveal how well adapted these

courses are to the needs of the home economics student who is not preparing for professional or technical work. Study of this problem should be undertaken under competent technical guidance.

Biological sciences.—Genetics is required by but two institutions. Of the 12 institutions that require zoology, 5 include from 2 to 6 hours among the requirements of the first year; 5, among second-year requirements, the hours ranging from 2 to 8; and 2 institutions list it among the third-year requirements and require 4 hours.

General bacteriology is required by 19 institutions, or more than one-half of all those offering this curriculum. Nine others require household bacteriology. The hours of general bacteriology range from 2 to 6. The usual number is between 2 and 4 hours. The requirement is made in the second year. Requirements in household bacteriology come in the third year, the hours ranging from 2⅔ to 4.

The study of biology for students in general home economics may be considered of importance. Seven institutions report requirements in this field varying from 2 to 6 hours. Among four of the six the requirement is made for the first or freshman year. Two require 6 hours in this year.

Twenty-eight institutions require either general or human physiology. It is a little surprising that a subject so important should not receive the consideration of all institutions in the making up of this curriculum, although it may be that courses in hygiene offered under physical education make up for this seeming lack of attention to advanced study in so basic a science.

Eighteen of the 28 institutions reporting require human physiology. In nine, or one-half of the institutions, the department of zoology in the college of arts and sciences or agriculture, gives the course. The variation in hours required is as great as in the other sciences—from two to six. The second year of the student's work seems to be the favored one for this requirement.

Other natural sciences.—General physics is required by but five of the institutions offering the general home economics curriculum. The hours range from two to six. There is a tendency to include household physics rather than general physics for home economics majors. Fourteen institutions require courses in this field. In 11 they are given by the physics department, but in two cases the department of agricultural engineering teaches the course in household physics, while at one it is taught in the department of science in the agricultural college.

Psychology.—General psychology is listed among requirements in 20 institutions; child psychology in 10. This general recognition of the place that a general knowledge of psychological laws

has in the education of persons who are to be leaders in family groups is significant. However, six institutions require no psychology. In five of the six, no requirements in education are prescribed which might offset this weakness to some extent. The number of hours required show clearly that psychology is not given the place of emphasis in the general home economics curricula that is accorded to the biological sciences or chemistry.

Sociology.—Sociology is quite generally included among the requirements in the general home economics curriculum but seven institutions omit it. The required hours vary from two to nine. Eight, or 33 per cent, of the 24 institutions reporting require three hours. There is no agreement as to the year in which its study is judged to be most advantageous.

Other social sciences.—The importance of economics study is reflected in courses in the general home economics curricula. Twenty-nine of 35 institutions include the subject among the requirements in this curriculum. The number of hours shows a variation from 2 to 12. In general, from three to six hours are required. "Principles of economics" is the study most often included. In most cases courses in economics are given by the department of economics in the colleges of arts and sciences.

Twenty-four among the 35 institutions require history, the hours varying from 1 to 14. Nine institutions list the history requirements among those of the first year. In 10 institutions, including 3 of the foregoing, history is a second-year requirement; in 2 institutions in the third year; and in 5, it is a fourth-year requirement. In five institutions the year is not set.

A trend toward emphasizing the social and political sciences is shown in the fact that in five institutions the number of hours required in these subjects is greater than the total number of hours of natural science required; in eight others, the ratio of the total hours of social and political sciences to the total hours of natural science is as two to three. Table 19 shows the relative emphasis put upon natural sciences and social and political sciences in general home economics curricula among the several institutions.

TABLE 19.—*Showing hours of natural science and social and political science required by institutions in general home economics curricula*

Institution	Number of hours required in	
	Natural sciences	Social and political science
1	2	3
University of Arizona	26	20
University of Arkansas	24	9
Colorado Agricultural College	43	14
Connecticut Agricultural College	18	21
University of Delaware	27	15
Georgia State College of Agriculture	28	18
University of Illinois	20	6
Iowa State College	27⅓	12
Kansas State Agricultural College	35	13
University of Kentucky	25	15
University of Maine	37	9
University of Maryland	23	12
Massachusetts Agricultural College	18	13
Michigan State College	18⅔	13⅓
University of Minnesota	38⅔	13⅓
University of Missouri	26	13
Montana State College	33	8
University of Nebraska	18	15
University of Nevada	23	15
Cornell University	40	5
North Dakota Agricultural College	8	16⅓
Ohio State University	33⅓	12
Oklahoma Agricultural and Mechanical College	13	0
Oregon Agricultural College	8	16⅔
Pennsylvania State College	22	15
Rhode Island State College	19	9
University of Tennessee	16⅓	20
University of Vermont	38	12
Virginia Agricultural and Mechanical College	27⅓	20
State College of Washington	12	14
University of Wyoming	23⅓	14

The lack of agreement in regard to the relative emphasis upon these two fields is evident from the table.

Education.—Courses in education are very naturally not so generally included in the general home economics curriculum as are courses in social and natural sciences. Students enrolled in general home economics curricula are not as a whole preparing to teach home economics, for most of the institutions offering the general home economics curriculum also offer one in teacher training. Nevertheless, 12 institutions require courses in education in the general home economics curricula, the number of hours ranging from two-thirds to 15.

English.—It is, of course, the accepted convention in the general home economics curriculum, as well as in almost all other curricula offered by the higher institutions, to place considerable emphasis upon English. Among 35 institutions, 27 require 10 or more hours, most of which fall in the first or second year of college work.

Other languages.—Less than one-half of the institutions offering a curriculum in general home economics make any language requirement other than English, but the number of hours required by 12 institutions is rather large. Among them, 5 require 12 or more hours.

Mathematics.—A study of college mathematics is not regarded as essential in the training of young women in this field. But four institutions require courses in this subject.

Applied art and design.—All of the 35 institutions list courses in applied art and design among the requirements in the general home economics curricula. The number of hours shows a very great variation, from 2 to 29. The requirements are not limited to any one year, but are distributed rather evenly throughout the first three years in most of the institutions. Ten institutions include art appreciation among the required courses. The theory of color is listed among requirements in 11 institutions; principles of design in 30; costume design in 22; furniture design in 3; home decoration in 21; landscape design is included among the requirements at one institution and pageantry and play design at one. Two include courses in textile design among requirements in this curriculum. In 10 institutions, courses in principles of design are taught in the department or division of home economics, while in 17 they are given by the department of art. One institution lists a required course in principles of design given by the department of landscape gardening.

Physical education.—Physical education is required of all students enrolled in the general home economics curricula except in one case. Most institutions have a physical education requirement in both the first and second years. Eight of these carry this requirement into the third year.

Agriculture.—Three institutions among the 35 require courses in agriculture of students in general home economics. The requirement of two hours in one of these institutions is divided between courses in poultry, dairying, and horticulture. Eight and two-thirds hours of agriculture required by another are divided as follows: Three and one-third hours of poultry, one and one-third hours of horticulture, and two hours of dairying. The courses required by the third institution are limited to courses in horticulture.

Foods and nutrition.—Emphasis upon foods and nutrition is indicated by the large number of hours required in this subject by all institutions. Sixteen institutions list courses in this field among the requirements of the first year. In most instances the courses deal with food selection, which do not demand of the student a fundamental knowledge of chemistry. Fourteen institutions postpone food study until the second year, when the study of food preparation and service in addition to food selection enters into the curriculum. The

absence of experimental cookery as such among the requirements of home economics is significant, since it shows either a tendency to include it as an aspect of all foods work, or to disregard it entirely in the training of students who do not expect to become laboratory technicians. Nutrition and dietetics for the normal rather than the abnormal person is emphasized by the inclusion of courses in this field among the requirements of most institutions. The range of required hours is very great, from 3 to 23 hours with several group tendencies evident that are also widely different. Further, eight institutions make no nutrition or dietetics requirement for general home economics. One institution requires no foods work. One institution requires a study of dietetics for the abnormal person but requires no nutrition or dietetics for the normal person.

Clothing and textiles.—The emphasis placed upon construction and care of clothing is shown in the somewhat larger number of hours required by most institutions in courses of this type than in courses where the training in selection of clothing is the main interest. Twenty-seven institutions list clothing construction and care among requirements, while 25 list clothing selection courses. The total hours of clothing construction range from 2 to 10. Since many institutions include the study of clothing selection in courses with construction and care, this picture of emphasis is somewhat distorted. Considerable attention is being given to selection, since 25 of the 35 institutions offering curricula in general home economics require courses in textiles for use in clothing. Seven of these require additional courses in textiles for home furnishings, including instruction in selection of household linens, blankets, and other furnishings.

Housing.—Eighteen of all institutions reporting require courses in house planning which are usually given by the department of home economics; while 11 require courses in sanitation, and 7 in home equipment and home furnishings. Although it is important in the training of a young woman whose occupation will be that of homemaker to understand some of the principles of house construction and planning in order to know what to look for in choosing a place to live as well as in building her own home, the emphasis that is put upon this phase of work in the requirements of many institutions is interesting. There is more agreement between institutions regarding the total number of semester hours of housing required than in any other field of subject matter in specific home economics subjects.

Home management.—A study of the economics of food as well as economics of clothing as a separate branch of work is not generally listed among the requirements in a general home economics curriculum. The subject of costs and values in relation to both foods

and clothing is such a vast one, so far-reaching, and involves so many factors, so little work has been done in this field, so few people trained, that it is not surprising to find less than one-half of the institutions offering specific courses. Data reveal, however, a considerable interest in acquainting students who will spend most of the family income, with information which should help them to choose both clothing and foods wisely. The management of family finance has always engaged the attention of home economists and its study has been included in home economics curricula from the first. Home economics has emerged, however, from the static budget plan of presentation of the problems of family finance to a more real and vital consideration of the use of real incomes. One-half of the 35 institutions offering curricula in general home economics require courses in family finance of their students. Among the nine institutions reporting a definite number of hours required in this subject, the range is from one and one-third to three hours.

Practice work in the home management house is required by but 17 institutions. Considering that the training offered by a general home economics course should be less specialized and should train young women particularly for homemaking, it is a little surprising that practice in a situation so nearly like that of the real home is not listed among the requirements.

Family life.—Twenty-seven institutions list courses in child care and development and family life among the requirements in the training of young women in general home economics. The institutions omitting these subjects from their requirements are not limited to the smaller colleges. The hours of this subject required are not long and vary as do those in other fields. The requirement is generally made for the third and the fourth year work, indicating that a knowledge of psychology and social sciences as well as orientation in other subject matter and the greater maturity of the student may all be brought to bear in the consideration of the problems of child care and development and of family relationships.

Summary of general home economics curriculum.—The very confusing picture presented by this record of practice is relieved at very few points. To be sure, the English requirement is universal, but represents general institutional policy rather than home economics determination. In the same way the general requirement that chemistry shall be taken is an institutional prescription to at least as great a degree as it represents home economics reflection upon its needs for the general home economics curriculum. This becomes evident in the wide variations in both number of hours and course content prescribed in addition to normal institutional demands. Home economics is apparently in little agreement either as to the amount or kind of chemistry needed in the general home economics curriculum.

Similar discrepancies in practice are evident in all the other subject-matter fields. Institutions do not agree as to how much or what phases of a single subject shall be included in the curriculum and in practically every instance some institutions neglect entirely subjects that to other institutions seem essential to general home economics training. Even in the older and better established subjects indubitably elements of technical home economics, one institution requires many more hours than another. Thus in foods and nutrition one institution requires more than seven times as many credits as the institution that requires the smallest number. Nor is this situation true of only the extremes. In foods and nutrition the eight institutions requiring the greatest number of hours all demand twice as many credits as the highest among the seven lowest institutions.

Even cursory examination makes it evident that so far as similarity of course requirements and content are indicative there is not among the 35 land-grant institutions reporting a general home economics curriculum that can be understood as meaning even approximately the same thing in all the institutions. The confusion of objectives already noted, the lack of agreement in regard to relative division between requirements and electives, and the failure to reach common understanding in regard to content of the general home economics curriculum are, of course, interdependent factors.

The public expects and, in view of the fact that the great majority of women become homemakers, demands that home economics reach some degree of agreement in regard to what should constitute the college education of women through the medium and by virtue of the interest that women have in the distinctly home economics subjects.

The undergraduate student who does not expect to enter a professional or technical field is the primary concern of those who would construct a general home economics curriculum on the college level. This curriculum should be definitely directed to this end. The purpose is large and its attainment will constitute an outstanding contribution to American higher education. Other purposes may well be set aside or delayed; certainly compromise with the objective here indicated in order to provide training in specialized fields and employments will mean mediocre accomplishment in all areas.

Home Economics Teacher-Training Curricula

Consideration of the education courses in the home economics teacher-training curriculum belongs properly with the section of the land-grant college survey that deals with professional education of teachers. The detailed treatment will be found in that section. But it is desirable to include brief consideration of this important curricu-

lum in its entirety at this point in order that its objectives as defined by the home economics units, its division into required and elective elements, and the content of subject matter assigned to it may be examined in relation to these three factors in other curricular programs.

Objectives of home economics teacher-training curricula.—The occupational objective of a teacher-training curriculum appears so obvious that it may fairly be expected that the 35 institutions that list specific teacher-training curricula would assign but one major objective, preparation of teachers, to this curriculum. Thirty-four do assign this objective but 12 also assign to this professional and occupational curriculum the function of preparing homemakers, 7 add that it is intended to provide general culture and 4 indicate extension work as an objective. This is almost as confused as the assignment of objectives to general home economics. Of course, teachers require general culture, and many of them ultimately become homemakers, and extension work is a teaching employment that has as yet not developed adequate training in its techniques and objectives as differentiated from those of high-school teaching. Nevertheless it arouses considerable question concerning the degree of design for the specific purpose of teacher preparation when a grouping of material is expected to accomplish such varied objectives.

Required and elected hours.—Division of time among home economics required subjects, the sciences and humanities, and electives is shown by Table 20 as reported by 13 institutions.

Much the same variation between the proportions of requirements and electives is shown in this curriculum as in that of general home economics, although the list of institutions is not the same throughout.

TABLE 20.—*Home economics education curricula in 13 land-grant institutions*

Institution	Number of semester hours—						
	Required for first degree	Strictly home economics subjects	Per cent	Sciences and humanities	Per cent	Electives	Per cent
1	2	3	4	5	6	7	8
Alabama Polytechnic Institute	144	47	32	66	46	31	22
University of Arizona	124	35	28	61	49	28	23
University of Hawaii	132	29	23	20	14	83	63
University of Illinois	130	43	33	69	53	17	14
Kansas State Agricultural College	128	37	29	65	50	26	21
University of Maine	140	58	42	75	53	7	5
Michigan State College	132	42⅔	32	71⅓	54	18	14
University of Minnesota	126	44⅔	35	70	48	11⅓	17
University of Missouri	122	48	39	46	38	28	23
University of Nevada	128	34	26	76	59	18	15
Ohio State University	126⅔	23⅓	18	78⅓	62	24⅔	20
University of Vermont	140	33	23	92	65	15	12
University of Wisconsin	124	36	29	44	35.5	[1] 44	35.5

[1] Includes 10 credits in general home economics subjects which are required.

Among the institutions reporting on this particular phase in teacher-training curricula, four institutions allow no free electives during the first two years; two institutions allow none during the first three years. Table 21 shows the number of institutions allowing certain semester hours of free elective years.

Among 23 institutions reporting on group electives allowed in teacher-training curricula, 17 show a larger number of hours in groupings of non-home economics subjects. Among these, six institutions report all electives in non-home economics subjects. Among the six other institutions, two report a larger number of hours of home economics subjects in groupings of electives. One divides the hours equally between home economics and non-home economics; 3 give total number of hours, but do not specify from which group they may be chosen.

TABLE 21.—*Free electives in teacher-training curriculum in land-grant institutions*

Year	Number of institutions	Number semester hours allowed—						
		0	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	Maximum number by any one institution
1	2	3	4	5	6	7	8	9
First	19	9	6	3	1	0	0	[1] 10
Second	22	4	11	7	0	0	0	[2] 8
Third	22	3	6	7	5	1	0	[3] 15
Fourth	24	3	3	6	6	5	1	[3] 20

[1] Ohio State University.
[2] Michigan State College.
[3] South Dakota Agricultural College.

Content of teacher-training curricula.—Curricula designed to prepare students to be teachers of home economics show a material difference from those in general home economics in only one significant respect—the number of hours of education required when the two curricula are compared institution by institution. In other particulars they are similar in respect to the fields of subject matter in which requirements are made, the number of hours required, and their arrangement or sequence in years.

Among the 27 institutions offering both general home economics and teacher-training curricula, four institutions include more chemistry for teachers than for students in general home economics. The additional courses required are usually physiological chemistry. Three institutions increase slightly the requirements in physiology; five increase to some extent the number of hours of applied art for teachers; one increases the economics requirement; three require

slightly more English for teachers than is required in the general home economics curriculum. Requirements in psychology are very similar, although one institution increases the hours required from six in general home economics to eight in teacher training; and another that has no psychology requirement in the general home economics curriculum requires six hours in teacher training, four in general psychology, and two in child psychology. Requirements in economics are practically identical as are those in English and other languages.

It was noted that certain of the institutions set up education requirements in their general home economics curricula. In 18 institutions making no such requirements in the general home economics curricula the frequency and range of requirements in the teacher-training curriculum are shown by the following: One institution requires 10; one, 12; one, 13; five, 15; one, 16; three, 18; one, 18⅔; one, from 18 to 20; two, 20; one, 21; and one, 22. Close correlation exists between the number of hours of education required in these curricula and the State minimum requirements for teacher certification.

Two institutions that require education in the general home economics curriculum raise this requirement in the teacher-training curriculum, one from 12 to 29 hours and the other from 3 to 18.

Among 33 institutions that reported in detail concerning their teacher-training curricula, 24 require courses in principles of education, usually coming in the third year of work, the hours ranging from two to five, most institutions requiring three. Thirty-two require observation and student teaching as well as studies of special methods in home economics. In most cases these requirements are made in the fourth year. One requires eight hours of observation and student teaching in the junior year with two and two-thirds hours of special methods in the same year, while another, with a student-teaching requirement also in the junior year, requires but two hours then and an additional four hours in the senior year. One other institution requires student teaching (3 hours) in the junior year. But 25 institutions among the 33 require educational psychology, the hours ranging from two to five and occurring most often in the third year. Fifteen institutions require courses in secondary education methods. Nine institutions require courses in vocational education. Among those reporting the number of hours required, the range is between one and one-third and five.

Seven institutions offer teacher-training curricula, but no "general home economics." The significant difference between the teacher-training curricula developed by these institutions and other curricula offered is again in the matter of number of hours of edu-

cation required. These are for the most part similar both in course content and in number of hours to the curricula offered by the 27 institutions having both general home economics and teacher-training curricula. Slight differences between the hours of specific home economics subjects required by these institutions and others are noted in the field of foods and nutrition and housing in which less nutrition and more housing are required for teachers than for students preparing for other lines of work. Eight institutions offer no specific curricula for teacher training.

It is apparent that few institutions make material difference in subject matter between their general home economics and teacher-training curricula except in the education requirements. In some instances the time for this specialization is secured rather more largely at the expense of the specific home economics subjects, but normally the amount is taken somewhat equally from home economics and scientific and humanistic subjects and from electives.

Foods and Nutrition Curricula

Twenty institutions state that they offer curricula in foods and nutrition. Inasmuch as this subject plays so large a part in general home economics curricula and the courses appropriate to the foods and nutrition classification range from general cooking work to highly specialized dietetics courses, the objectives of these curricula can not be inferred from their title. The statements of the objectives assigned to this curriculum by the institutions serve to clarify understanding in only the slightest degree.

Preparation for teaching is listed as an objective ten times; home making, eight; research, seven; general culture, five; business, five; social science, three; extension, three; and preparation of hospital dietitians is given as the objective in one instance. This does not seem reasonable. Inasmuch as all the institutions that offer this curriculum in foods and nutrition also offer curricula in general home economics, which obviously should be designed for home making and therefore for general culture also, and since practically all also offer teacher-training curricula, it is puzzling to discover teacher training, home making, and general culture described as the objectives of a parallel curriculum. Does a foods and nutrition curriculum exist in fact in these cases? Have these institutions a foods and nutrition curriculum with its own objectives? Are curricula and subject-matter majors or their equivalent confused? These questions can not be answered exactly, but the lack of meaning of the curricular label in this instance is apparent. Business, extension, and research are conceivable objectives to certain types of foods and nutrition work, but the

statements are vague since business is of so many kinds, research specialized in so many directions, and extension usually not differentiated along lines of food and feeding.

Examination of the content of these so-called foods and nutrition curricula aids in distinguishing distinctive purposes in the case of only a few institutions. The facts summarized by Table 22 merely serve to emphasize the lack of correlation between specific functions and multiplication of claims to curricular development.

If these curricula had as objectives the specific preparation of research workers in food and nutritional areas, of consulting nutritionists, or hospital dietitians or of public-health workers, the fact should be indicated clearly by emphasis upon chemistry requirements since all these employments obviously demand concentrated training in this subject. This is not the situation, however. While all require general chemistry, only 15 require organic, 6 quantitative, and 4 qualitative. On the other hand, four require household chemistry which was clearly developed to adapt pure chemistry to the less precise and systematic needs of students of home economics without professional or technical purposes. Only 12 of the 20 require physiological chemistry.

TABLE 22.—*Foods and nutrition curricula in 20 land-grant institutions*

Institution	Number of semester hours required in—													
	Natural science	Applied art	Physical education	Psychology, economics and social science	English	Other languages	Education	Foods and nutrition	Clothing and textiles	Housing	Home management	Institutional management	Family life	Total for first degree [1]
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
University of California	18	0	2	6	6		0	21			4			124
Connecticut Agricultural College	22	0	4		12	0	6	14	11	3	0	0	3	140
University of Hawaii	17	4	8	6	12	0	0	15	13	3	0	0	0	132
University of Idaho	38	10	4	9	10	0	13	15	13	0	0	0	0	128
University of Illinois	40	0	5	12	14	0	0	24	0	0	0	0	0	130
Purdue University	51	6	2⅔	0	12	0	0	24	6	0	0	0	0	149
Iowa State College	33⅓	12	2	12	10	0	0	14	8⅔	6	5⅓	0	4	136
University of Maryland	27	9	6	6	6	6	2	12	3	0	7	0	5	132
Michigan State College	21⅓	4	4⅔	13⅓	12	0–8	0	18⅔	8⅔	2⅔	6⅔	2⅔	1⅓	132
University of Minnesota	47⅓	11⅓	0	11⅓	10–11⅓	0	0	29⅓	11⅓	3⅓	6	0	2	126
University of Missouri [2]	43	4	2	13	10	0	10	18	6	0	4	3	5	122
Rutgers University	30	3	10	6	12	6	0	24	7	0	0	3	0	135
Cornell University (for teaching)	46	6	4	11	6	0	18	18	6	5	9	0	3	107–108
Oklahoma Agricultural and Mechanical College	16	6	4	9	15		11	26	19	7	7	0	19	130
Pennsylvania State College	26	7	6	9	12	0	18	18	8	3	3	0	3	126
South Dakota State College	25⅓	5⅓	3⅓	10⅔	10	0	2	22	12	0	6	0	0	136
University of Tennessee	22⅓	6	5⅓	16	12	12	4	14	12	4	4	0	4	132
Agricultural College of Utah	24	0	8	12	16	10	0	20	0	0	0	0	0	120
West Virginia University [3]	19	10	4	25	10	0	0	20	10	9	5	0	5	128
University of Wisconsin	38	7			6	8	0	10	5	4	7	3	5	120

[1] Because of incomplete information the hours assigned to specific fields do not equal the total number of hours required.
[2] Curriculum called "Research in food and nutrition."
[3] Agriculture, 9 semester hours required.

It is apparent that these curricula are not generally designed for the accomplishment of the highly technical occupations that depend upon chemical training although it is evident that upon the basis of this test several of the institutions have thoroughly adequate chemical requirements in this curriculum. The advisability, however, in these cases of calling it a foods and nutrition curriculum may well be questioned.

It would be expected, whatever the objectives or the reasonable grounds for setting up a foods and nutrition curriculum, that such curricula would contain a larger proportion of courses so classified than is the case in other curricula. However, there are 7 of the 20 curricula that require 15 or fewer hours in this field which certainly does not differentiate this curriculum from the general home economics one. Less than 15 hours does not represent a very high degree of specialization. However, certain of the institutions that in other respects have constructed this curriculum for the accomplishment of highly technical occupational objectives show decided emphasis upon foods and nutrition and related natural science. Thus one institution requires 29⅓ hours of foods and nutrition work and 47⅓ hours of science, making a total equal to three-fifths of the graduation requirements. With a few exceptions of this kind these curricula do not stress natural science beyond the general requirements in any course leading to a B. S. degree.

Such examination of the facts as those indicated lead inevitably to the conclusions, first, that when definite technical objectives are ascribed to foods and nutrition curricula, other names would be more appropriate; and second, that the term foods and nutrition curriculum has no common meaning or significance among the institutions that list such a curriculum.

Textiles and Clothing Curriculum

The 17 institutions that offer a curriculum in textiles and clothing show the same confusion and vagueness of definition of objectives that was apparent in the foods and nutrition curriculum and probably for much the same fundamental cause, confusion of subject matter with purposes. The objective is stated as that of teaching nine times, home making eight times, business extension, general culture, and research nine times each. One institution states that social service is the objective.

In this field as in that of foods and nutrition some institutions have developed curricula with very well-defined objectives that might well be given more exact descriptive names, as is done in the case of one institution's curriculum in research in textiles and clothing, which has for its objective the training for research in this field.

Examination of the content of this curriculum as shown by course requirements with the hours listed by Table 23 makes clear that in only a relatively few instances have institutions adapted offerings to objectives that are distinct from those of general home economics or from the foods and nutrition curricula.

Of special significance is the notable reduction in the number of hours of natural science as compared with foods and nutrition, although in three instances the chemistry requirement is heavier than the requirement in strictly clothing and textiles subjects. Lack of common understanding of the purposes of this curriculum is revealed also by the wide range of hours in applied art, extending from 8 to 22. The higher ranges in these subjects are entirely appropriate to curricula which have for their objectives preparation for research in textile chemistry or costume designing. If these are the objectives of the curricula, it would probably be advisable to indicate the fact in the title of the curriculum. On the other hand, these higher requirements in both chemistry and textile subjects are entirely inappropriate to the objectives of home making and general culture which are each named nine times as objectives of the work by institutions offering this curriculum.

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TABLE 23.—*Textiles and clothing curricula in 17 land-grant institutions*

Institution	Number of semester hours required in—												
	Natural science	Applied art	Physical education	Social science	English	Other languages	Education	Foods and nutrition	Clothing and textiles	Housing	Home management	Family life	Total for first degree
1	2	3	4	5	6	7	8	9	10	11	12	13	14
University of California	12	20	2	6	6	15			28	6	0		124
University of Hawaii	8	16	8	6	12	0	0	9	25	3	0		132
Purdue University	29	16	2⅔	30	18	0	0	8	16	0	0	6	154
Iowa State College	27⅓	16	2	12	10	0	0	10⅔	12⅔	6	5⅓	4	136
University of Maryland	27	9	6	6	6	6	2	9	10	0	7	5	132
Michigan State College:[1]													
Clothing	18⅔	6⅔	4⅔	2⅔	12	0–8	0	8	14⅔	5⅓	9⅓	1⅓	132
Textiles	34⅔	5⅓	4⅔	2⅔	12	0–8	0	8	10⅔	5⅓	9⅓	1⅓	132
University of Minnesota	31⅓	15⅓	15⅓	13⅓	10 or 11⅓	0	0	6⅔	16	3⅓	6	2	126
University of Missouri	26	11	2	0	10	0	0	6	[2] 15	2	4	3	122
Do	38	9	2	13	10	0	0	6	[3] 17	2	4	3	122
Rutgers University	24	22	10	6	12	6	0	7	17	0	0	0	135
Cornell University	36	11	4	11	6	0	18	5	23	5	9	3	103–106
Oklahoma Agricultural and Mechanical College[4]	16	11	4	6	15	0	11	22	22	7	7	19	130
Pennsylvania State College	18	9	6	12	12	0	18	11	17	3	3	3	126
South Dakota State College	25⅓	8⅔	3⅓	13⅓	10	0	2	8⅔	14	0	6	0	136
University of Tennessee	16⅔	8	5⅓	16	12	12	4	8	18	4	4	4	132
Agricultural College of Utah	24	10	8	12	16	10	0	0	16	0	0	0	120
West Virginia University	19	10	4	25	10	0	0	20	13	9	5	5	128
University of Wisconsin	30	11	([5])	([6])	6	8	0	3	10	8	7	7	120

[1] Michigan State College has two separate curricula.
[2] Clothing and arts.
[3] Preparation for research in textiles and clothing.
[4] Institutional management, 3 semester hours required.
[5] No credit given.
[6] Elective.

The lower ranges of requirements in these curricula in textiles and clothing are appropriate to a general home economics curriculum and it would seem advisable for institutions that have not the facilities for highly specialized and technical work in the field of textiles and clothing to confine their offerings frankly to the general home economics curriculum. The institutions that have best developed specialized curricula indicate the fact by omitting or minimizing work that is clearly more appropriate to the general home economics curriculum. Thus five make no requirements in family life or child development although three of the same institutions prescribe work in home management, apparently as serving more general basic purposes appropriate to the specialization chosen.

Extension Teaching

Eleven institutions provided data with reference to extension teaching curricula. All very properly give the definite vocational objective of extension teaching as the purpose of the curriculum. But homemaking is also named as an objective five times, general culture twice, social science and business once each.

Examination of the content of this curriculum as shown in Table 24 for the 11 institutions make it evident that the objectives stated in addition to the basic one of extension teaching might be served just as well as extension preparation by the selection and arrangement of subjects given by a number of the institutions. For instance, only five of these curricula show any required courses in extension methods. This in spite of the facts that the physical situation in which extension teaching takes place is very different from that of the formal schoolroom, the extension teacher has problems of administration which the classroom teacher does not have, and the approach or "set" required for teaching in the informal situations wherein adult learning takes place are so different as to demand some orientation either in the form of courses, or better, in the combination of required courses in extension methods and field work.

TABLE 24.—*Home economics extension curricula giving the total semester hours credit in 11 land-grant institutions*

Institution	Number semester hours in—															
	Natural science	Mathematics	Agriculture	Applied art	Physical education	Social science	English	Other languages	Education	Foods	Clothing and textiles	Housing	Home management	Family life	Extension methods	For first degree
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Alabama Polytechnic Institute	30	0	9	13	8	11	16	0	16	12	9	3	8	8		144
University of Arkansas	24	0	8	11	6	9	12	0	3	12	8	4	6	2	4	132
Iowa State College	27⅓	0	0	12	2	10	10	0	10	8⅔	8⅔	6	5⅓	4		136
Louisiana State University	14	0	1	0	0	14	6	0	8	13	10	2	4	2		72
University of Maryland	23	0	0	9	6	6	6	6	14	9	3	0	7	5		132
University of Minnesota	38⅔	0	0	11⅓	0	15⅓	10	0	11⅓	21⅓	13⅓	3⅓	6	2	2	126
University of Missouri	26	0	0	9	2	19	10	0	5	15	12	2	4	3		122
University of Nebraska	27	0	0	8	4	12	10	0	3	11	11	4	3	1	2	125
Cornell University	43	0	0	11	4	11	11	0	10	15	23	5	9	3	3	124–130
University of Tennessee	16⅓	0	14	6	9⅓	20	14	12	28	12	12	4	0	4	2	132
Virginia Agricultural and Mechanical College	27⅓	4	8⅔	10	2⅔	19⅚	16⅔	0	30⅚	8⅔	10⅔	5⅓	0	2⅔	0	144

The extension teacher of home economics is primarily engaged in acquainting the homemakers of the State with information which will assist them in the adoption of approved practices in all the lines of work connected with family and home relationships. She must be acquainted, therefore, with the fundamental knowledges in foods, clothing, housing, home management, and family life, and moreover, she must be skilled in methods, both administrative and teaching, which will make these knowledges available and useful in the extension teaching situation.

Foods and nutrition, here, as in the other home economics curricula receive the major attention in most institutions. But family relationships and home management are just as important for the extension worker. They are given relatively little attention by several of the extension curricula. Indeed the range in number of semester hours in all fields of home economics subject matter is sufficient demonstration that there is little agreement upon what is necessary to provide the technical home economics material demanded by an extension curriculum and that some institutions are offering so-called extension curricula that are well devised to excite the prevalent doubtful attitude that extension leaders take in regard to their effectiveness as actual preparation for extension work.

The extension teacher to be successful must be equipped not only with subject matter in the field of home economics, but with considerable knowledge of psychology, sociology, and economics. The number of hours of these subjects required of those preparing for extension teaching varies from 6 to 20. Six of the 11 institutions offering extension curricula require between 11 and 15 hours in these subjects. Two require less and 3 a greater number.

Since writing and public speaking are two methods of teaching very largely used by persons in the extension field, preparation for them should be emphasized considerably in the extension curricula. A wide range in emphasis in English requirements is shown among the institutions. Two institutions require but 6 hours; six of the eleven require between 10 and 12 hours; one, 14; and two, 16.

The range in the total number of semester hours of natural science from 14 to 43 is significant. Likewise, the range in the total number of semester hours of agricultural courses required. Many extension teachers need considerable knowledge of dairying, horticulture, and poultry. Therefore, this difference of emphasis in this field is one seriously to be considered.

Curricula in Institutional Management

Data concerning the institutional management curricula of 14 land-grant colleges and universities were furnished. Clearly, whatever

the variety of institutions for which managers may be prepared, ranging from tea rooms and cafeterias to college housing and insane asylums, the objective here intended must be vocational. The statement of objectives made by 12 institutions which indicates this fact is usually expressed as preparation for business and thus makes the situation even more vague than the title, since business covers a wider area of occupations than institutional management. But in addition objectives are again stated in terms of homemaking, teaching, general culture, extension, and social service from one to five times. Further, seven state that the objective is hospital dietetic work, a purpose that seems somewhat more highly scientific than those associated with institutional management and business.

The courses included in curricula called institutional management curricula are indicated by Table 25.

TABLE 25.—*Institutional management curricula in 14 land-grant institutions*

Institution	Number of semester hours in—													
	Natural science	Applied art	Physical education	Psychology, economics, and social science	English	Language	Education	Foods and nutrition	Clothing and textiles	Home housing	Institutional housing	Home management	Institutional management	Family life	First degree [1]
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Georgia State College of Agriculture [2]	31	29	10	18	12			18	0	0	3			21	140
Purdue University	29	6	2⅓	6	15	0	0	24	6		3	11			150
Iowa State College	27⅓	12	2	12	10	0	0	10⅔	8⅔	6	2	5⅓	6	4	136
University of Maryland	23	9	6	6	6	6	2	12	3	0	0	7	0	5	132
Michigan State College	24	4	4⅔	17⅓	10⅔	0-8	0	16	8⅔	5⅓	0	6⅔	4	1⅓	132
University of Minnesota	38⅔	11⅓		11⅓	10 or 11⅓	0	0	30⅔	11⅓	3⅓	0	6	0	2	126
University of Nebraska	27	6	4	15	10	0	0	11	2	4	0	3	8	1	125
Rutgers University	0	3	10	6	12	6	0	24	7	0	0	0	3	0	135
Cornell University	43	3	4	5	6	0	0	25	6	2	2	9	0	0	93
Oklahoma Agricultural and Mechanical College	13	6	4	6	12	0	0	22	21	7	4	7	14	19	100
Pennsylvania State College	26	7	6	15	12	0	0	18	8	3	6	3	0	3	126
University of Tennessee [3]	22⅓	6	5⅓	16	12	12	4	12	12	4	7⅓	4	0	4	132
State College of Washington	23	7	3	11	8	0	0	18	9	7	2	0	7	0	128
University of Wisconsin	30	9	[4]		6	8	0	9	5	4	4	7	3	5	124

[1] Because of incomplete information the hours assigned to specific fields do not equal the total number of hours required.
[2] Requires 2 semester hours in agriculture.
[3] Requires 4 semester hours in mathematics.
[4] In University of Wisconsin each student is required to take physical education but no credit is given toward a degree.

Extended comment upon the facts given by the table seems unnecessary, it would be in effect little different from comment on curricula already discussed. However, attention must be called to certain especially significant facts. There is a notable absence of courses in mathematics or business administration which would acquaint those preparing to follow the occupation of managing any institution with business methods, accounting, and similar fundamentals. The fact that four include courses in the economics of food and clothing seems an inadequate provision for curricula designed to prepare persons for the complicated business duties and relationships involved even in the management of a roadside tea room. It is, on the other hand, worthy of note that nine of these curricula require special courses in institutional housing carrying credit of from two to seven and one-third semester hours.

Miscellaneous Curricula

Three curricula offered by a limited number of institutions may for the purposes of this survey be grouped together, the applied art curriculum, the home management curriculum, and the curriculum in family life, child care, and development. Careful studies of objectives stated and of the content of these curricula make it evident that they represent no significant or specific contribution to the problem of adaptation of subject-matter material to attainment of specific and important objectives. They appear to represent still further the tendency evident from the examination of curricula already discussed to multiply the number and names of curricula without corresponding differentiation of content or purpose.

In addition to the curricula already treated several are being offered that display a better and more exact understanding of the functions of curriculum making and the relationships of curricula to objectives of the occupational type.

The hotel management curriculum offered by Cornell University displays careful attention to planning content for the attainment of a specific objective. As an example of the results of the process which is one that should be followed whenever a special curriculum in any vocation is set up some of the facts in regard to this hotel management curriculum are given.

Of those preparing to become hotel managers, 25 hours of natural science are required. Among these, 2 hours of general bacteriology; 6 of biology; 6 of general physics; 3 of general physiology; and 3 hours of animal husbandry are required. In addition to the hours in natural science are 10 hours of principles of economics; 9 hours of agricultural economics; and 4 hours of psychology. The hotel manager must in addition to these pursue studies of mechanical draw-

ing and interior decoration, as preparation to select furnishing and textiles in harmony with the architecture peculiar to hotels. Twelve hours of foods and nutrition are required including courses in marketing and large quantity cooking; counter supply for institutional management; food selection and 77 hours in preparation and service of foods. Thirteen hours of institution management including study of institutional equipment and construction problems arising in connection with institutions; 14 hours of accounting and financing are required.

As an example of a vocational curriculum of the scientific rather than the business type, which has developed relatively close adaptation of content to the attainment of a specific desired outcome is the hospital dietetics curriculum offered by the universities of Missouri and Minnesota and Cornell University. Table 26 summarizes briefly some of the major distributions of content material in this curriculum in terms of semester hours.

Additional examples might be given of isolated cases in which curriculum construction has been determined by formulation of attainable objectives and content material selected for such definite purposes. Such examples might be discovered in individual instances among several of the curricular groups already discussed and also among other specialized curricula that the limitations of space make it inadvisable to mention.

TABLE 26.—*Hospital dietetics curricula in three land-grant institutions*

Subject	Number of semester hours required by—		
	Cornell University	University of Minnesota	University of Missouri
1	2	3	4
Natural science	40	41⅓	36
Applied art	3	11⅔	(1)
Physical education	4	0	0
Social and political science	5	2	13
English	6	10	10
Education	0	4	10
Foods and nutrition	17	30	25
Clothing and textiles	6	7⅓	6
Housing	2	3⅓	2
Home management	0	6	4
Family life	0	2	3

[1] Six hours applied art under home economics.

It is not the purpose of this survey to submit models or lay down standards in the case of specific curricula. The purpose is to examine and report on the general situation with respect to home economics curricula in the United States with reference to the educational principles and policies that prevail in the higher educational

world and to suggest procedures and policies looking to the further development of the functions of college home economics in harmony with the future evolution of educational life in the United States. These purposes are no doubt obscured for the general reader and perhaps to a degree for the home economics specialists also, by the details that have been presented. It is advisable, therefore, to summarize certain tendencies and conditions revealed by the preceding discussion and to relate these conditions and tendencies to other aspects of home economics education and to trends in general higher educational development.

The Curricular Situation

This most obvious superficial situation revealed by study of home economics courses and curricula is confusion of objectives, confusion of means adapted to the attainment of objectives, and confusion of lines of demarcation between subject-matter fields. Nevertheless, judgment of home economics solely upon the basis of these contradictions and obscurities would miss entirely the elements in home economics that give it such unmistakable vitality. These elements are essentially those that have always caused the great advances and the great disturbances in the world, unwavering faith in what has not been demonstrated and stubborn conviction that this faith can and ultimately will be justified by its works. Historically and currently the distinctive faith and function of home economics must be defined in terms of sex. Home economics is the educational expression of a changing social world in which women seek to define in new terms their relationships to all the factors of living. It is not concerned especially with what has come to be connoted by "women's rights." Although removal of artificial disabilities that stand in the way of women receives whole-hearted support it is noteworthy that home economics has never been characterized by "militant" feminism. It is above all concerned with discovering and utilizing the means by which the capacities of women may be fully developed and through which their abilities may find free expression. Home economics shares the common confidence that this like all other important problems is one of education.

Only by such an interpretation as this is it possible to explain the vigorous and aggressive position of home economics in education in the United States. The offerings of home economics in the land-grant colleges and universities afford evidence of the substantial validity of such an interpretation and are in turn clarified by it. These abstract generalizations may be made concrete and specific; they are derived from a thousand facts and provide the pattern that gives the facts meaning.

Three threads run through the entire mass of data concerning the courses and curricula that constitute home economics offerings. They appear again and again in the statements of objectives. First is the constant concern with the education of women as members of the family social unit, second is interest in women as earners, and third is the pursuit of new and more exact knowledge that will contribute to both these aspects of women's functions. These things are clear; upon them there is agreement. It is only when practical expression of these purposes is attempted that the impression is created that home economics is bewildered by the wealth of possibilities, by the necessity of selecting from the multitudinous materials available those best suited for its purposes, by the variety of demands, and by the chasms of ignorance that must be bridged. Shall the interests through which it is believed that impetus may be given to women's development be defined and presented in terms of science, of economics, of the material, of the level and sociological, or in some other terms?

Women's interests provide a starting point for all these forms of educational attacks, all provide a wealth of material that has been developed and organized for other purposes but that may be adapted to the uses of home economics. This confusion is reflected in the striking lack of agreement in regard to emphasis upon the various subjects that compose any one of the curricula that is offered in a number of institutions and is especially evident in the curriculum designed for general home economics education.

If home economics continued to define its objectives in terms of skills or knowledge this condition would be more serious than it is, for in that case the best choice of content and method would be relatively limited to vocational purposes that can be rather easily analyzed. But despite the fact that there is doubtless much surviving adherence to these interpretations of educational purpose, home economics leaders are expressing with increasing clarity the more fundamental objective of creating what may be called educated attitudes, educated viewpoints, and educated methods of dealing with all problems by which the individual may be confronted. The educated attitude is interpreted as one of intellectual rather than emotional reaction. The educated viewpoint is one of tolerance and of wide interest in all the activities of the world. The educated method is that of reasoned and logical treatment of facts. These purposes are the basic ones of general home economics. To attain them requires a synthesis of the viewpoints represented by the scientist, the economist, the sociologist, and the humanist—a synthesis that utilizes subject matter derived from the special interests and functions of women as members of the family unit. The purpose is

not that of a profession—the profession of homemaking, motherhood, or being a woman—for it contemplates the activities, duties, and functions of women in quite another realm of values than that of professional occupation.

The objectives of general home economics may be stated in much the same terms as those of the college of arts and sciences but its field and its subject matter are much more exactly and clearly limited. The college of arts and sciences has assumed that there is a body of knowledge that may be so treated as to create in anyone the initial interest and experience, the attitudes and habits of action that characterize the educated or intellectual classes. General home economics retains the basic purposes of liberal education but takes its departure from interests already strongly developed among women and seeks to select and relate subject matter from these fields in such fashion as to release and to develop the abilities of women in directions that will lead them to educated viewpoints and methods of dealing with life as women find it.

With this objective the confusion of subject matter now found in general home economics curricula may be explained and, in so far as confusion represents experimentation, directed to the discovery of the best selection of subject matter for this purpose. However, the present condition does not in fact arise simply from causes of this kind. In part it is due to acceptance of the educational emphasis developed by special subject-matter fields in the legitimate pursuit of their own proper places in the sun, in part to traditions of the 4-year college course, and in part to failure to distinguish clearly between the general home economics objective and objectives of vocational or research character.

The emphasis upon chemistry without corresponding integration with the initial interests of women or with other elements of the general home economics curriculum which developed with the increasing importance of chemistry in industry is now giving way somewhat to emphasis upon economic and social subjects that developed effectively, so far as the land-grant colleges are concerned, with discussion of agricultural marketing, farm relief, and other elements of rural welfare not immediately phases of agricultural production. General home economics may very properly, of course, utilize these aspects of learning, but it should be with conscious and specific reference to its own objectives rather than as a reflection of tendencies in industrial or agricultural education.

The tradition of the 4-year college course represents the background and environments in which the college curriculum in general home economics has developed. The hold of this tradition is now becoming weaker but will persist and perhaps should persist in

many college organizations and curricular plans. The problem of the general home economics curriculum becomes one, therefore, of determining which of four general policies it shall follow. Shall it adhere to the principle of the 4-year arts and science course in which interest is aroused by inserting courses of specific home economics character throughout the entire period? Shall it attempt to develop what may be called an isolated college of general home economics in which the basic core about and through which the abstract sciences and humanities are made to function upon the consciousness of its students in home interest? Or shall it accept the principle that home economics shall during the first two years complete the general education of its students by utilizing home economics subject matter to vitalize the elements of education that in their abstract form appeal less to women and to follow this general training by other specialized 2-year curricula looking to occupational or research preparation? Or shall it abandon any special emphasis upon home economics during the first two years, and depending upon a type of general education designed to prepare during this period for almost any kind of specialization, undertake to set up distinct 2-year general, vocational, and research curricula in home economics upon the basis of these two years of general education. All these tendencies are evident in current educational development. Probably all will persist and be embodied more or less permanently in different types of institutions in spite of the present strength of the tendency to emphasize the advantages of two years of general junior college education upon which specialization may be based. The survey does not recommend any single one of these plans to general home economics for adoption by all institutions. It does earnestly recommend that in harmony with the policy of the institution of which it is a part each home economics unit definitely select one of these four choices and reexamine its curricula, especially its general home economics curriculum, in accordance with the general theory and policy adopted. At present this has not been done. Much of the confusion in the present construction of home economics curricula arises from attempts by single home economics units to adhere simultaneously to two or more very different and divergent plans.

Confusion of general home economics objectives with vocational and research purposes that is evident in the statement of objectives and content of home economics curricula arises in part from attempted adherence to two or more of the theories of educational organization just presented. In part this confusion is due to the inadequate educational training and experience of home economics personnel which results apparently in inability to relate specific

demands for home economics education to appropriate subject-matter combinations.

However the situation is not due entirely to either of these causes, an important factor has been institutional and social insistence that diverse objectives be served without providing personnel and facilities which would make possible articulation of subject matter consistent with the purposes intended. Home economics like other elements of higher education has had to meet pressures of this kind by expedients that the personnel could not sanction upon professional or educational grounds. This is a problem for institutional as well as for home economics administrators. Both should attempt to limit offerings to areas that the institution is prepared to handle effectively rather than to comply with all the diverse demands that may be made or to attain by means of paper arrangements the variety and scope of curricula of larger and better financed institutions. The general home economics curriculum that contemplated a general college education specifically designed for woman is the basic function and service of home economics education. This implies, however, no belittling of more specific vocational functions which should be served through their own curricula. The need for vocational specialization in the fields in which women find employment is highly desirable. Demands for cafeteria managers, teachers, dietitians, editors, saleswomen, and buyers in specialized lines and so through the whole series of modern remunerative employments have to be considered from the standpoint of college home economics functions.

From the strictly vocational standpoint many of these occupations do not require four years of college training in the specialty that is applicable. Many of the women who look forward to life employment in certain vocations may not profitably devote two years of junior college to general education as foundation for specialization. In these cases which can be determined only by careful personnel judgment of the student and by careful analysis of the contemplated occupation, the vocational preparation may well be given upon the lower division or junior college level. Curricula should be devised for this purpose. The student who spends two years in general preparation as a basis for more exacting specialized vocational preparation should, in the event that she changes her mind or fails to display the requisite ability for such specialization, be permitted and encouraged to attempt one of the junior college vocational curricula. On the other hand several of the vocational curricula now dispersed through four years may well be concentrated into two years of senior college or upper division work based upon two years of general junior college training. General junior college training may or may not be through a 2-year

general home economics curriculum. It seems advisable, however, wherever institutional organization and policy permit that this be the plan adopted.

With the present high standards of high-school education it is probable that two years of general home economics instruction upon the junior college level will provide as high a standard of general education as is advisable and should be followed by specialized upper-division curricula. However, it is not improbable that the social judgment of the desirability of "going to college" will and should preserve indefinitely in some institutions the 4-year home economics curriculum with objectives that are strictly those of general education.

General home economics curricula and curricula designed to prepare for home economics vocations should be distinguished from those that contemplate preparation for research. The research function is one of scholarly preoccupation distinctly different from the general purposes of liberal education and although research may lead to remunerative employment the main characteristic is learning, not earning. Because of the influence of developments in other fields as well as because of a very real connection with areas of primary concern to home economics the tendency in home economics discussion has been to emphasize scientific research. However, research in the sociological and economic aspects of women's interests and especially in the problems of women's education should have as much earnest attention as research in the physical sciences. Perhaps more emphasis should be given, since the conventional investigations in the field of the social sciences is less directly applicable to home economics problems than is the case of research in physical sciences.

The need for research to clarify and supply material for the home economics education of women is clearly recognized in the statements of objectives assigned to all the home economics curricula. The adaptation of subject matter to meet this need is, however, often insufficiently distinguished from the assemblies of courses for the purpose of attaining quite different objectives. This is evident from an examination of the home economics curricula described for the the purposes of the survey.

Part of this confusion arises from the persistence of belief in, but vague definition of, the desirability of providing those who are to follow scholarly pursuits with a basic general home economics training. Perhaps some of the perplexity engendered by the wish for this alliance would disappear if the problem were attacked by utilizing a 2-year period of general home economics education as a means for providing this training and as a means of selecting the students who should be guided to an upper-division curriculum looking definitely to preparation for research in physical or social sciences. Thus stated

it should be distinctly different from the preparation designed for the more highly skilled or technical vocations. The courses chosen for this curriculum would naturally be those which give training in the methods of investigation and research procedures appropriate to groups of the social or physical sciences. The purpose of this specialization is clearly not that of undergraduate attainment of expertness or productiveness in a specific field of scholarship but is rather that of preparation for graduate apprenticeship for scholarly production.

To recapitulate briefly, home economics curricula should be carefully distinguished as to objectives and their length adapted to the specific purposes they are intended to serve. The general home economics curriculum of two years' duration may provide a basis both for a variety of upper level vocational curricula and for curricula looking to development of research careers in the physical or social sciences. Lower division vocational curricula are needed both for those who do not contemplate more highly technical employments and for those who prove unable to pursue such advanced training. Nevertheless, it is probable that some institutions should continue to provide more discursive and leisurely 4-year curricula both in general and in vocational home economics.

Chapter VIII.—Home Economics Teaching

A national survey of the status of home economics in the land-grant colleges can contribute little to the solution of problems of actual classroom teaching. The survey data do, however, furnish some information in regard to emphasis upon the laboratory method and in regard to the extent to which individual instruction is undertaken.

It is perfectly evident that home economics has somewhat enthusiastically accepted the laboratory method as a means of instruction. In 12 institutions the number of laboratory and lecture or recitation hours are about equal. In 24 other institutions the proportion of laboratory to lecture or discussion hours varies from 3 to 1 and 4 to 1. In one institution among 20 home economics courses taught in 1927–28 two hours of lecture, none of discussion, and 73 hours of laboratory work per week are shown. In another among 60 courses are 40 hours of lectures, 17 of discussion, and 226 laboratory hours per week. In still another, no lectures, 18 discussion hours, and 100 laboratory hours occur.

These facts raise two questions. Are the so-called laboratory hours in such subjects as foods and clothing devoted to practice in becoming good cooks or expert seamstresses? Are they devoted to work compatible with the real functions of laboratory work, making the students familiar with the techniques and methods of attack through which truth is discovered or applied? If the former is the case, the laboratory hours are a weakness in home economics instruction and not an element of strength as is usually assumed. If the latter is the case, it would seem that the proportion of time devoted to the purpose is entirely too great for the range and level of undergraduate instruction. The undoubted values of the laboratory method have in other fields as well as in home economics led to overemphasis upon and substitution of routines and insignificant procedures for basic instructional values that may be acquired by this method. The entire matter of laboratory method and its place in teaching needs thorough reexamination in home economics as in other fields. Probably educational experimentation designed to determine comparatively the results of laboratory work of various kinds and in various amounts

should be applied to the different subjects in which this method is used. Perhaps also some further investigation of the comparative results of laboratory work and demonstration and the limitations of both should be undertaken in the home economics fields. Such studies will require careful definition, control, and interpretation. It is recommended that the home economics services unite for studies of this character.

The individual conference method of instruction under which the student is largely thrown upon his own resources and in which it is the function of the instructor to provide the student with guidance in methods of attack and procedure rather than with subject matter, is used to a very limited extent in home economics instruction by the land-grant colleges. This has in the past been the method supposedly appropriate to graduate work but is increasingly finding its way in undergraduate instruction. Although as has been shown by previous pages of this report more than 50 per cent of the undergraduate courses offered in home economics may also be taken for graduate credit, less than 7 per cent of 1,188 courses offered are taught either wholly or in part by the individual conference method. The method is used at all in the home economics instruction of only 19 of the land-grant colleges reporting. It is not advocated that any large proportion of the work of undergraduate home economics teaching be carried on in this manner, but for students of special ability or unusual interests and for the accomplishment of purposes that can not be realized through class instruction, the individual conference method is commended to the consideration of home economics teachers and administrators.

Practical Experience and Home Economics Training

Practical experience is not generally regarded as essential to the success of professions or occupations in which students of home economics are specializing, according to reports received from 27 institutions. Among six institutions offering special training in applied or related art, but one requires practical experience of one summer's duration. But 8 of the 14 institutions offering special training for extension workers require practical experience. Among these, six give one month as the length of time required. But 10, or one-half of the 20 institutions offering special curricula in foods and nutrition, include practical experience as a requirement. Twenty of the 35 institutions offering special training for teachers of home economics require practical experience in the teaching situation as part of the preparation for this work. Six of the 16 offering special training in institutional management make such a requirement and 8 of the 16 offering special training in the field of textiles and clothing.

The three institutions offering special curricula in dietetics require some practical experience. There is obvious misunderstanding of the meaning of "practical experience." Many included what must be practice teaching and hospital dietetics practice under this head.

It does not seem to be considered necessary that this practice be done under supervision. Particularly is this true in the fields of applied art, foods and nutrition, teacher training, and general home economics. Under teacher training, but nine institutions report the practice work done under supervision; eight that it is not supervised; three do not report. Two institutions report practice work in foods and nutrition done under supervision; three report no supervision. The practice in institutional management and clothing and textiles, though it is not widely required, is generally done under supervision.

The student who is specializing with a view to preparing herself to go at once into highly specialized society, immediately upon leaving college, needs not only tools useful in her future practice, but practice and guidance in using these tools in particular situations. Methods can be better practiced in the actual situation where the student will employ them, than in the artificial setting of a classroom or a school laboratory. The establishment of home management houses has been a step in this direction for home management and general home economics. At best, it is somewhat artificial. It is highly desirable that home economics departments establish relationships with homemakers, commercial concerns, and other persons and agencies in order to work out a cooperative program which will include a broader opportunity for student practice under the guidance or supervision of persons capable of giving wise direction. This recommendation is not to be regarded from the standpoint of apprenticeship, but rather from the one of a mutual interchange of tools and methods. By practice in the real situation, the student gains much more than mechanical skills. By cooperation and association with outstandingly successful persons the student may not only learn techniques of management, but, more than that, he has an opportunity to observe a philosophy.

Chapter IX.—Students

Home economics organizations in the institutions, home economics staffs, buildings, and offerings have no virtue of their own. Their purpose and value consist solely in their use in the education of students. It is possible, or has been attempted in preceding pages of this report, to discuss the suitability and standards of these instruments of instruction in a fashion more or less detached from the students themselves, but the ultimate measure of their usefulness is the human product. To attempt to determine the effect upon a national scale of home economics in terms of student measurement is impossible but some indication of the values of home economics instruction is afforded by the degree to which it attracts students (enrollments) by the character of the student body, by the number of degrees earned, and by the life occupations that graduates find. This section upon home economics students is devoted to these matters and to corollary considerations that arise from them.

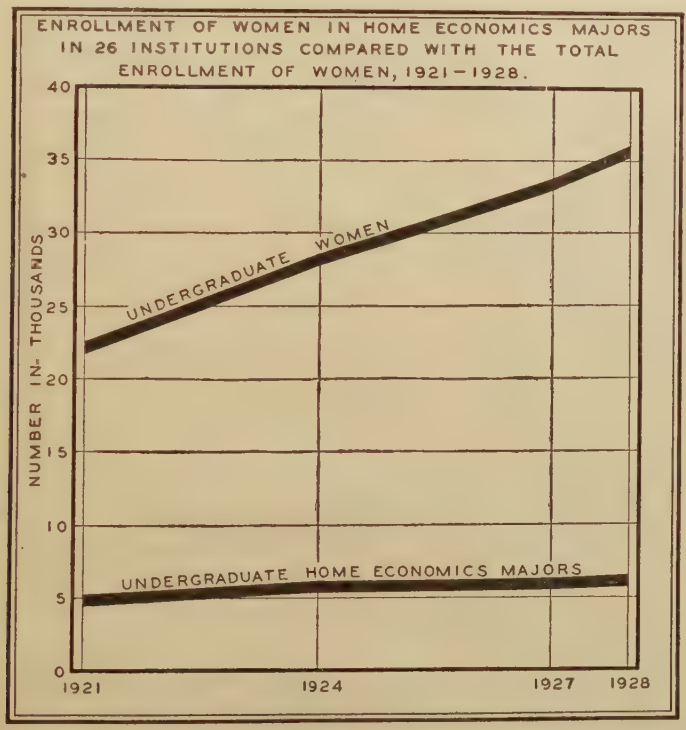
Enrollments

It is a common assumption that the enrollment of women in land-grant institutions is largely enrollment of women majoring in home economics. That this is not the case in the 26 institutions for which comparable figures were available over a period of years, is shown by the graph on the opposite page.

It will be noted that in this group of 26 institutions the percentage of home economics majors to the total enrollment of women has declined from 22 per cent in 1920–21 to 17 per cent in 1927–28. It will also be noted that while the percentage rate of increase of the total number of undergraduate women has tended to decline during the years 1920–21 to 1927–28, the rate of growth in the number of home economics majors has declined even more rapidly.

It is perhaps significant that certain institutions show a very much higher percentage of home economics majors to the total enrollment of women in these institutions than is the case for the 26 institutions included in the graph. In Connecticut Agricultural College 89 per cent of the women enrolled are majoring in home economics; in Georgia State College, 85 per cent; in Iowa State College, 82 per

cent; in Rhode Island State College, 75 per cent; Colorado Agricultural College, 70 per cent; Purdue University, 67 per cent; Virginia Agricultural and Mechanical College, 49 per cent; South Dakota State College and the Agricultural College of Utah, each 40 per cent; and in Oregon Agricultural College 39 per cent. All of the institutions showing very high percentages of women students enrolled in home economics majors are separate land-grant colleges, that is predominately technical institutions.



This fact may be interpreted in two ways: Either the programs of these institutions are so limited to technical purposes that home economics is practically the only curriculum offered that appeals to women, or the home economics offerings are so constructed that they afford opportunities that in State universities would be met by distinct non-home economics curricula. Other evidence furnished by survey data makes it apparent that the institutions showing larger percentages of women majoring in home economics may be divided into two groups upon the basis of the application of these two tendencies.

The relationship of the number of home economics majors to the total enrollment of women in the land-grant colleges is intimately

connected with curricular development and definition of home economics objectives.

The distribution of enrollments in various home economics curricula in 1927–28 presented by Table 27 for 43 institutions is of special interest in this connection.

TABLE 27.—*Enrollments in home economics by curricula in 43 land-grant institutions, 1927–28*

Curricula	Number of institutions reporting	Number of students enrolled	Per cent
1	2	3	4
Applied art	2	13	0.3
Extension	9	48	1.3
Foods and nutrition	8	134	3.5
General home economics	19	1,733	46.6
Teacher training	21	926	25.0
Home management	1	7	.2
Institutional management	11	126	3.4
Textiles and clothing	6	47	1.3
Bacteriology	1	3	.08
Nursing	2	9	.2
Home economics journalism	1	3	.08
Hospital dietetics	2	23	.6
Professional home economics	2	495	13.3
Hotel management	1	123	3.3
Physical education	1	26	0.7
Five-year bachelor of arts and bachelor of science	1	3	.08
Total		3,716	

The data concerning enrollments raise three questions: Shall home economics be developed as a special, highly technical type of education appealing to a relatively limited group of women? Shall it be developed as a medium that will provide a general college education for women more effectively than other curricula? Or shall differentiated home economics curricula be developed which will distinguish clearly between objectives appropriate to technical purposes and those designed for general education? Upon the answer of home economics and the institutions to these questions will depend in large part the distribution of the enrollment of women between home economics and other elements of the educational program.

The size of the student body in home economics in various land-grant colleges in 1927–28 is significant. In 41 land-grant institutions reporting for the year 1927–28, enrollments in each of 15 institutions were fewer than 100; in 17 others they varied from 100 to 300; in 8 others from 300 to 600, and in 1 institution, the enrollment was more than 1,000.

The largest enrollment is in Iowa State College, where 1,026 women have chosen home economics as their major field of study. Kansas State Agricultural College reports the next largest enrollment, 516. The University of Illinois reports 404; Purdue University, 432; Michigan State College, 401; the University of Minnesota, 434; Oregon Agricultural College, 476; the University of Wisconsin, 308.

Another measure of the drawing power of home economics afforded by enrollment figures is the number of students enrolled in home economics as a minor study. Available data in regard to this type of service are very incomplete, but 7 institutions that have a system of majors and minors report for 1927–28 no students minoring in home economics, while 11 others show but 123 students with home economics as a minor. Two institutions, Alabama Polytechnic Institute and the University of Vermont, account for 60 per cent of the home economics minors reported. The apparent conclusion that there is very little interest in home economics as a minor study would hardly be justified upon the basis of the incomplete data furnished, but the evidence is sufficiently startling to suggest that the matter be given institutional study. It may be that further inquiry would reveal that the offerings of home economics need reexamination from the standpoint of the contribution they might make as a point of secondary emphasis for students who are majoring in other fields.

The impression thus produced that home economics is making little appeal to non-home economics majors is modified by the record of the number of students electing one or more courses in home economics. Cornell University reports 1,062 students other than those majoring or minoring in home economics in this group; Utah Agricultural College, 947; University of California, 564; Kansas State Agricultural College, 482; State College of Washington, 309; University of Nebraska, 207; Louisiana State University, 200; University of California at Los Angeles, 144; University of Missouri, 139; University of Minnesota, 125; and the University of New Hampshire, 110.

Men Enrolled in Home Economics

Although home economics offerings are not generally taken advantage of by men, the increase in the enrollment of men is significant. Seventeen institutions report 555 men enrolled for one or more courses during the year 1926–27. Thirteen institutions report a total enrollment of 636 men for the year 1927–28. Oregon Agricultural College leads with 272. Cornell University reports 227 men enrolled for home economics courses, 123 of whom are registrants in the hotel management curriculum. North Dakota Agricultural College reports 62 men enrolled; Iowa State College and the University of Illinois each, 22. As home economics develops specialized areas of instruction in the social fields, especially in those that are concerned with health and business, and as its science work is more completely integrated upon a college level with home and family activities there seems little reason why the number of men

who elect home economics courses should not increase materially. The relationships of home economics to the interests and activities of men are quite different from the relationships of engineering and certain other predominately masculine specializations to the interests of women. A very wide field of business and professional activities in which men engage, touches directly and intimately and is dependent upon the family as a social and economic unit. As these matters are handled increasingly by home economics in accordance with high educational standards, men who contemplate life activities that are closely related to the management and maintenance of the human and material welfare of the family will find it advantageous and even necessary to familiarize themselves with special phases of home economics work.

Scholarship and Loan Funds

Undoubtedly attendance at higher educational institutions is considerably stimulated and increased by special aids afforded through scholarships, fellowships, and loan funds. The question naturally arises, therefore, as to whether home economics enrollments are due to a greater or lesser degree than is the case in other elements of the colleges and universities to special aids of this kind. Inasmuch as women find fewer opportunities than men to earn their own way in college and since institutions quite usually impose more restrictive regulations upon the living conditions and activities of women than upon men students, institutional emphasis upon such assistance to women students would seem entirely logical and desirable. Details in regard to scholarships and fellowships will be found in another section of the survey report,[3] but it is appropriate to call attention in this place to data furnished independently of those used in the special study of institutional aids of this kind.

The number of scholarships granted to home economics students is very small; in 24 institutions reporting scholarships, only 84 other than State scholarships were granted to home economics students in 1927–28. One-third of these were given at the University of Minnesota. Those granted varied in value from $10 to $900. Where the amounts are definitely specified, 19 are less than $100; 39 between $100 and $150; 3, $150 to $200; 9, $200 to $250; 3, $250 to $300; 1, $350 to $400; 3, $400 to $500; and 1, more than $500. Nine institutions report no scholarships available; four, that scholarships are available, but not specifically for home economics. Two institutions do not report; two others report only State scholarships; while five among those first named show special home economics scholarships available. These figures do not give an accurate picture

[3] Part VI, Student Relations and Welfare.

of scholarships available for the reason that several institutions report "several scholarships," and similar indefinite items.

Among 22 institutions, 103 loan funds available for the use of home economics students are reported. For 19, or about 20 per cent of all loans, no interest is charged; for the other 80 per cent interest, which begins after graduation, varies from 4 to 6 per cent; 4 per cent being the most common rate.

Recent discussion of the social effect of student loan funds has not been entirely favorable. It is argued that such loans start out young graduates under a burden of debt which tends to delay marriage and the establishment of families. To complete an education, especially for the professions, requires an apparently ever-increasing number of years, thus raising the age at which earning is started. Singleness easily becomes a habit during the years of education and early period of small earnings. In brief the burden of repaying an educational loan may become a material factor in the tendency to late marriage and small families among the educated classes. The arguments advanced apply with special force to loan funds for women. Marriage and the establishment of homes is the normal and desirable thing for the majority of college women. In spite of all discussion about young women pursuing careers or continuing gainful employment after marriage, the fact remains that in the great majority of cases, the biological function of child bearing precludes such occupations or delays them until later years. Anything which would diminish to any great extent the number of young women with special home economics training who marry, should be considered seriously. The young woman who has borrowed very much money for her college education often faces a situation in which she must delay marriage and a home because of her unwillingness to put the responsibility of repayment upon her husband. Factual evidence is lacking and probably always will be, to prove this assertion or to ascertain how general the situation is. It is an aspect of loan funds, however, that deserves consideration.

Degrees

According to reports from 42 institutions, the bachelor's degree for work in home economics was granted by 7 land-grant colleges prior to the year 1900; 8 additional institutions granted degrees between 1900 and 1910; 21 between 1910 and 1920. Six others have granted degrees since 1920.

A study of degrees offered by 26 institutions from which total figures are available for the years between 1920 and 1928, shows a steady increase in number from 695 in 1920, to 1,080 in 1928. Nine hundred and thirty-nine degrees are reported for 1923–24, an in-

crease of 244, or 35 per cent above 1920–21. One thousand and two degrees were granted to home economics graduates in 1926–27, an increase of 63, or 6.7 per cent. In 1927–28, 1,080 degrees were conferred on persons who had specialized in this field, an average increase of 78, or 7 per cent over the previous year.

The entire group of land-grant institutions reporting on this point (43) granted 1,534 first degrees in 1927–28 to students in home economics curricula. Forty-eight per cent of all degrees were granted to students completing the work in teacher training. Thirty-five institutions report 763 bachelor's degrees given for this work in 1927–28. In 13 institutions, the degree was granted by the division of home economics; in 10, by the college of agriculture; and in 6, by the college of education; and in 2, by the college of liberal arts and science. In 4 instances, the name of the major division granting the degree is not specified.

Second in number of graduates for 1927–28 are those completing courses in general home economics. Thirty-six institutions report 462 graduates. In 15 institutions, the degree was conferred by the division of home economics; in 13, by the college of agriculture; in 2, by the college of education; and in 3, by the college of liberal arts and sciences. Three institutions do not specify the name of the major division granting a bachelor's degree for work in general home economics.

The bachelor's degree in home economics with specialization in foods and nutrition was conferred upon 78 persons by 20 institutions in 1927–28. In nine cases the degree was conferred by the division of home economics; in five, by the college of agriculture; in one, by the college of education; and in 3, by the college of liberal arts and science. Two institutions do not specify the name of the division granting the degree.

Seventy-six bachelor's degrees were conferred in 1928 by 16 institutions upon students who had specialized in institutional management. In seven, the degree was granted by the division of home economics; in three, by the college of agriculture; and in one, by the college of education; and one, by the college of liberal arts and science. Three institutions do not specify the name of the major division granting these degrees.

One institution, Iowa State College, reports 1 graduate completing work in the curriculum "family life" in 1928.

Although six institutions report curricula in applied art, only two, Iowa State College and Michigan State College, report graduates in 1928 with specialization in this field—the former four, the latter, two.

Eight institutions show 16 graduates with specialization in extension teaching. Numbers of other graduates according to their field

of specialization are: Home management, 2; textiles and clothing, 34; hotel management, 23; household economics and home management, 21; hospital dietetics, 22; nursing, 6; physical education, 5; and homemakers' course, 10.

Seventy-eight per cent of all graduates of divisions of home economics among 39 land-grant institutions in 1927–28, completed work either in general home economics or teacher training. Graduates with specialization in all other curricula, make up only 22 per cent of the total. Such a large percentage of home economics graduates with training in general home economics and for teaching is insignificant. It shows clearly that these curricula may well be the first and major concern of the home economics units in the land-grant institutions. Specialization, for other occupations may be and undoubtedly are important, but from the standpoint of democratic education the curricula in general home economics and in teacher training are still reaching the largest numbers.

Character of the Study Body

Few measures or estimates of the character of the home economics student body are available except the very one-sided records and judgments that emphasize deficiencies. Thirty-seven institutions report that the outstanding weakness in the training of students graduating since 1925 is lack of coordination of training. This judgment is that of supervisors of home economics education, the directors of home economics departments, and of those in charge of teacher placement. Other points in order of frequency in which they are reported are: (1) Inability to speak and write the English language correctly; (2) deficiency in training in fundamental sciences, and lack of training in fundamentals of organization; (3) deficiency in academic training and incompleteness of training in home economics subject; (4) discipline; (5) lack of training in office organization. Sixteen institutions make special notations in which other points of weakness in training pointed out show emphasis upon the inadequacy of training on the social side—philosophies, attitudes, personality, ability to adjust self and training to needs of different social groups.

How much four years of undergraduate association and instruction can do to change habits built up through 15 or 20 years is, of course, a matter for speculation, but these reports indicate the recognition of a problem. It is equally obvious, of course, that these criticisms are in fact directed toward the college of home economics offerings and methods. They constitute a recognition of the failures and a challenge to correct them much more truly than a comment upon the study body itself.

Employments and Placements of Students

Under modern social conditions a great number of young women, as well as men, are gainfully employed. Most of the students in home economics expect to and will pursue some gainful occupation for at least a few years after graduation. The distribution of home economics graduates among various life occupations is treated in some detail by the section of this survey that deals with graduates and ex-students.[4] The reader is referred to that section for factual information in regard to this matter. The subject is introduced here in order to record the methods used by the institutions in guiding and placing home economics students.

The methods used to acquaint students with demands in the fields allied with the training offered are significant, in that they measure in some degree the success of the training itself. Among 32 institutions reporting, 16 report occasional assemblies of students for lectures on the vocations which are open to young women with home economics training. Eight report that student advisors confer with students concerning vocational opportunities. Nine report personal interviews between students and members of the staff or persons who are engaged in vocational work. The University of Missouri reports that the home economics department participate in vocational guidance conferences arranged by the Women Student Government Association. The University of Wisconsin reports that the home economics department has cooperated with the department of psychology in studying needs within the university, in proposing a program for the entire university, and has been one of the most active departments in carrying plans into effect.

Fourteen institutions report using the advisor system for entering freshmen, not only to acquaint the student with courses and other offerings, but to keep in touch with her during the progress of her study for the purpose of guidance toward a desired end.

Demand for persons with home economics training is determined by home economics departments in various ways. Thirteen institutions report using the demand of previous years as a guide; 17, that conferences with the State supervisor of home economics education keeps them in close touch with the need for teachers. Ten institutions report that demand has always exceeded supply. Significant is the close cooperation shown with administrative heads in the teaching field. Very little is reported regarding association with workers in other fields. This is somewhat surprising since there is an increasing number of openings in the business world for women trained in home economics.

[4] Part V, Alumni and Former Students.

One method of determining demand for employment as well as the use made of the special type of education offered by home economics is by making studies of graduates. This method is not generally employed, seemingly, since only 11 institutions report any studies of graduates. Twenty-two report that no studies have been made; eight do not report. Most of the studies are concerned with teacher training.

Intimately connected with the subject of the opportunities open to home economics graduates and the placement of such students, are the contacts and affiliations of home economics units in the land-grant institutions with organizations and agencies outside the institutions. These relationships are significant in this connection in that they indicate something of the degree to which home economics is establishing itself as a distinct field of education, and they also serve to indicate whether home economics is developing as an extremely academic area of education or tends to associate itself with the practical affairs of the world. Both these aspects of outside relationships have considerable bearing upon the training and occupations of graduates.

Only 8 of the 42 institutions reporting in regard to these associations show any considerable breadth of such contacts and activities by reason of the number and variety of their affiliations and cooperations.

As might be expected the greatest activity of national character is found in connection with the American Home Economics Association, the national professional association of those engaged in home economics work. Thirteen institutions report 21 members of home economics staff holding office in the association; 11 report carrying on projects with it. Three institutions report carrying on projects with the aid of the American Association for Vocational Education; 17 report the association helpful in promoting legislative measures of concern to home economics in land-grant colleges.

The activity that is most frequently mentioned as carried on in cooperation with other national organizations is that of conferences, probably the most ineffective and least significant of all forms of association.

Cooperation with organizations upon a State basis shows a somewhat different emphasis. Here cooperation is largely in the matters of supplying speakers and helping with programs. Very few institutions report cooperating on projects with State agencies. Since the extension service has so wide an influence in most of the States, it is probable that many of the services the resident colleges formerly rendered are delegated to county representatives. Very few show any activity in the matter of providing or arranging exhibits. For

example, among 32 State fair associations reported active, 11 only receive cooperation from resident home economics. This may indicate the better organization of county extension services; or it may indicate that resident home economics is emphasizing a type of education less concerned with handicrafts, canned fruit, baking, and garment construction.

Local cooperations reported are of much the same character and receive relatively the same degree of emphasis. Activities reported are for the most part with city schools and charitable organizations, probably because these two are well organized. Very little cooperation is shown with rural schools or with county health work. Six institutions show considerable cooperation with vocational schools or classes—University of Idaho, Kansas State Agricultural College, Cornell University, Ohio State University, West Virginia University, and University of Wisconsin.

Federated women's clubs are the organizations with which home economics is cooperating actively in the greatest number of ways according to reports received. They have without doubt, done much to bring to the attention of the public as well as to organized groups, the need of the type of education which home economics has developed. They are a vitally interested group, composed entirely of women, therefore, an organized part of the group whose problems home economics has made it its business to study and help in solving.

A study of the replies from 41 institutions shows that 28 have established definite cooperative activities with commercial agencies. These cooperations are in the main of three types: Those confined to use of illustrative or demonstration materials; those offering opportunities for field and practice work for home economics students; and those concerned with association in research or special investigations.

Half of the institutions report assistance by use of demonstration materials. The types mentioned most often are those used in household management, clothing, and textiles. Colorado Agricultural College reports loans of etchings, batiks, pottery, and hand-wrought silver, and other art treasures from artists and shops. This is fine evidence of the recognition of the place fine arts should occupy in the experience of students and especially of persons whose occupation will in all likelihood be that of home builders.

Four institutions, Michigan State College, University of Nebraska, Montana State College, and Rutgers University, mention cooperation from commercial organizations in affording opportunities to home economics students for practice work. Two mention opportunity for practice in salesmanship, buying, and tea-room management. One states that members of the staff in clothing and house furnishing

departments give lectures in local stores. Two institutions mention practice work in institutional management: One with a railroad; one with local tea rooms and cafeterias.

Four institutions report cooperation in research and investigations with commercial concerns. The University of California reports graduate students working on a study of the keeping qualities of various papers in cracker cartons; also a study of the effect of cocoanut oil on loaf volume of bread. Kansas State Agricultural College reports testing of recipes for a national concern and the determination of vitamin content of certain canned foods commercially packed. Purdue University reports one member of the staff working part time on rural electrification. Oklahoma Agricultural and Mechanical College reports that home economics furnishes a short course one week in length for a public-utilities corporation.

Commendable as these affiliations are it is remarkable that so few of the home economics units in land-grant colleges have established similar relations. They might well find in such relationships many elements of value to resident home economics instruction, quite apart from preparation for specific occupations. For instance, commercial concerns are teaching the American family and the American home in thousands of ways each day. It would be well for home economics to help set up standards both of product and ethical procedure so that the housewife who is the largest buyer in the country, may have some further assistance in catching up in the "backward art of spending." Just how this can be done is something that must be worked out. Home economics should be one to lead in establishing somewhat the same relationship with commercial firms that medicine, agriculture, and other fields of education have established for the purpose of working out standards for commodities in their fields. This is a gigantic undertaking. Home economics should exert a wide influence based on scientific investigation.

Chapter X.—Conclusions and Recommendations

1. As compared with the traditional fields established in the higher educational world, home economics has had a very brief time in which to isolate and to create subject matter, to devise organizations, train staffs, and formulate purposes in terms of a college standard that has itself been revolutionized during the past 15 years.

2. There are four main tendencies or conceptions in interpretation of home economics purposes:

(*a*) *The development of handicraft skill in the operation of home keeping.*—No institution to-day admits that the major objective of its home economics work is that of developing handicraft skill in the operations of home keeping.

(*b*) *The development of home managers capable of handling the labor, the financing, and the social relationships that arise in the family unit.*—The statements of objectives by home economics departments show that more than two-thirds of the statements are determined by desire to provide education that will serve the purposes revealed by more or less conscious and thoroughgoing analysis of the family. Women are increasingly seeking and finding interests that are more closely related to other institutional and social groupings than to the homes which they maintain, and there would seem to be no reason why the other individual interests and abilities of women should be submerged in the family unit.

(*c*) *Preparation for specific gainful employment.*—All the 42 institutions that describe their home economics objectives include in one form or another statements of objectives in terms of gainful employment—teaching, dietetics, extension service, institutional management, journalism, and business concerned with the buying, selling, or servicing of products used in homes. It should be fairly obvious that these employment objectives are not fully determined and can not be determined by analysis of family and home activity and relationships.

(*d*) *The objective of combined scientific and social education.*—This objective may be described as one that attempts to combine scientific and social education by utilizing as a medium and incentive

the activities and relationships that arise from home and family life. In so far as this is a just statement of a definite home economics objective it requires solution of practical problems and experimental procedures that may well be of greater significance in higher education than the mere segregation of another area of educational endeavor. The processes that will be required if this problem is to be solved in the field of home economics will result in the creation of new subject matter, in new treatment of old subjects, and in daring experimental combinations of methods and courses.

3. The organization of home economics in the institutions tends to reflect and to determine to a considerable degree the conceptions of home economics objectives that are dominant in the land-grant colleges as a group.

There are in the land-grant institutions four types of assignment that reflect institutional conceptions of home economics objectives: (1) Assignment of home economics to the college of arts and sciences; (2) assignment to the college of education; (3) assignment to the college of agriculture; and (4) assignment to a position coordinate with the traditional major divisions in university organization.

(*a*) Retention of home economics in the college of arts and sciences tends to restrict the development of new and wider home economics objectives, since administrative control is centered in an educational position that is unlikely to devote a large degree of vigor and initiative to the special development of this field.

(*b*) Assignment of the home economics work to schools of education becomes inappropriate as women in increasing numbers enter occupations other than teaching. If all home economics work is conducted by this major division the practice is not in harmony with the relations that exist between other subject-matter fields and the school of education. On the other hand, it is just as much out of harmony with accepted principles of institutional organization to assign home economics teacher-training exclusively to a major division other than the school of education when a well-developed school of education exists in the institution.

Practice in the land-grant college with reference to the relationships that the home economics units bear to home economics teacher training shows considerable variety and indicates frequent departure from sound principles of organization.

(*c*) Affiliation of home economics work with the college of agriculture has provided opportunity in many instances for rather free development. Further evidence also points in this direction, since many of the home economics units still in colleges of agriculture are well developed and exercise a degree of autonomy far in excess of the self-control permitted to other subject-matter departments.

(*d*) When home economics instruction is conceived in terms of utilizing subject matter derived from home and family relationships as a medium for a combined humanistic and scientific college education it is entirely logical to set up an independent major division of home economics coordinate with the other schools and colleges of the institution. The tendency to make the home economics unit an independent one is in some instances a conventional notion of what is needed rather than an indication that home economics objectives are such as to require separate control.

4. Failure to articulate all home economics instruction, extension, and research through the head of home economics resident instruction is likely to result in undesirable duplication and a variety of standards within the institution.

5. When home economics matters must pass through a number of subordinate administrative heads before reaching the president it is relatively safe to assume that the immediate heads of home economics work may frequently be compelled to modify their objectives and activities in accordance with policies and attitudes determined primarily upon grounds other than those of development of home economics purposes.

6. Representation of the home economics units on the governing faculty bodies is so limited that a query may well be raised concerning the reasons for this situation. On the other hand, there is a somewhat liberal representation of home economics teachers upon institutional standing committees. That home economics should be represented so frequently on the curriculum committee, one of the most important institutional committees, is testimony by a large number of institutions that the home economics staff is recognized as having a contribution to make.

The facilities and the restrictions that are due to the formal position of home economics in the institutional organization serve to promote or to limit definition and attainment of objectives, but aggressive and competent home economics leadership or sympathetic administrative impetus may secure for home economics an organization of such size and of such character as to attain very advanced objectives even though its apparent position in the organization as a whole indicates restricted purposes.

7. In a number of the land-grant colleges multiplication of departments has proceeded at a rate not justified by the size of staff and by the academic ranking given to staff members. As presented in the reports from the institutions the internal organization of home economics units throws very little light upon the suitability of the existing organization to the attainment of any specific type of objective. Internal organization needs readjustment for the definite purpose of

adapting organization machinery to the accomplishment of a very well-defined purpose.

8. Home economics is establishing its subject-matter field in the esteem of other areas of college instruction. Expansion of the service that home economics can render to other divisions of the institution depends upon the degree of success attained in efforts to establish new and more thoroughgoing analyses of relationships and combinations of home economics subjects.

9. It is significant that among a group of persons engaged in the direction of education that depends upon homemaking for its incentive, so small a number have had experience in the fundamental relationship of marriage. It is desirable that institutional and State restrictions upon the employment of married women be removed wherever they exist and that an adjustment of home economics instruction especially be made in order that women actually responsible for their own homes may more easily be employed upon a part-time basis.

10. It is of special interest that in 41 institutions only 25 persons on the undergraduate staff are reported as having the doctor's degree. Inasmuch as the Ph. D. is the most commonly recognized badge of scholarship and of academic respectability, home economics, and institutional administrations may well take measures to employ new members with the doctor's degree or to encourage study while in service which will enable present members of the home economics staff to obtain the Ph. D.

11. In view of the paucity of the Ph. D.'s among the members of home economics staffs, it would appear probable that the graduate work in home economics is upon the master's degree level in most of the land-grant colleges.

12. A serious deficiency in the academic training of home economics staffs becomes evident when it is realized that almost half of the persons employed in this division hold no degree higher than the bachelor's. The proportion of the home economics staff whose highest degree is the bachelor's should be greatly reduced and employment of persons without any academic degree should be confined to a few specialized fields in which degree training is seldom afforded and is even less frequently desirable.

13. Home economics needs scholarly material both in the scientific and social aspects of its work. An increase in the value of interpretative material of more or less popular type is also desirable. It should be one function of college home economics staffs to take the leadership in providing publications of both types.

14. In 43 of the institutions reporting the head of home economics is directly responsible for recommending new appointments. If the character of these selections is inferior or superior to the standards

prevailing in the institution as a whole the responsibility rests largely with the home economics unit itself, except as the unit may be restricted or aided by salary scales that compare unfavorably or favorably with those of other divisions.

15. The principles or policies that have actually operated with reference to the promotion of home economics staff members in the land-grant institutions should be those that operate for the institutions as a whole.

16. Several theories seem to be applied in the land-grant colleges with reference to the basis of payment of women members of the staffs: (1) The principle of equal work and equal rank demand equal pay for men and women; (2) adjustment of pay to the financial needs of staff members which results in a lower range for women who are unmarried; and (3) determination of pay upon the basis of training and creative activity. Whatever theoretical approval may be given to the first of these principles and whatever the arguments that may be advanced against the second, it is difficult to disprove that institutional management upon the basis of the third method has not resulted in the lower present actual standard.

17. It is evident that a study should be made in each institution of the actual duties performed in order that a reorganization and a reassignment of administrative detail may be made which will not only prevent waste but which will release the time of trained administrative personnel for the more important phases of staff management.

18. Among the most important features of institutional management of the staff is the provision made for maintenance and improvement of faculty quality by means of attendance at professional meetings, study while in service, and leaves for graduate work elsewhere. These matters are of special significance for the home economics unit in view of the need for research experience and development of higher standards of staff training.

19. The home economics staff in land-grant institutions during the past five years has had a very large turnover. Factors operative are the low salaries paid, slow promotion, the increased interest of commercial firms in the home economics trained woman, offering larger salaries to successful people; marriage, which must always make fairly large inroads where the staff is composed to any considerable extent of young women; and the competition among colleges for persons who have proved their worth. Constructive staff management might easily reduce the effect of some of these factors.

20. The head of home economics is in 40 institutions responsible for recommending the purchase of new books in her field. It should be noted in this connection that unless full advantage of this opportunity is taken by the head of the home economics unit, responsibility

for inadequate library collections in this field rests to a large degree upon her shoulders.

21. The establishment of nursery schools in connection with home economics departments has a threefold purpose, namely, to give preparental training to students majoring in home economics; to give opportunity for parents to observe scientific methods of guiding young children; and to provide for research in child development and behavior.

22. In the nursery schools it appears that actual home situations are perhaps more closely related to laboratory practice and instruction in child training and development than is the case with any other phase of home economics instruction. It is probable that the same cooperative methods and technique might be employed profitably in the study of clothing for the family, food for the family, family finance, and family relationships. Less artificial situations in the schoolroom and laboratory should be developed thereby.

23. Objectives maintained as ideals may be ever so carefully worked out and enthusiastically championed but practical realization will depend upon the adequacy of resources devoted to provision of a competent staff and suitable physical facilities. On the other hand, financial resources that should be adequate in amount may fail to serve the needs of the home economics unit if poor management results in expenditures that are poorly directed to accomplishment of definite objectives. When objectives themselves are vague, confused, contradictory, no consistent basis or principle of economical financial expenditure is possible and the tendency is to confuse economy with parsimony.

24. The director of home economics and members of her staff serving as department heads within the home economics unit know well the needs of the department. She should be in close touch with the financial situation, not only in her department and college, but in the institution as a whole, and should have an important share in shaping the home economics budget with regard to development of a unit best qualified to accomplish accepted home economics objectives.

25. It would be unfortunate for home economics development if courses and curricula should become conventionalized prior to the best adaptation of means to accomplishment of well-defined objectives. Inconsistency and change are much less objectionable than consistency and permanence of practice upon a mediocre level.

26. It is somewhat surprising that a group as keenly interested in the development of its work as is the home economics group should determine its new offerings to so slight an extent upon the basis of scientific analysis of the activities and interests of women.

27. From the varied ways in which so large a number of departments of home economics in land-grant colleges are working to avoid duplication of high-school work it is clear that further systematic study of this problem is desirable. In part, solution probably lies in development of research in home economics that will provide subject matter sufficiently advanced to be distinctly separate in type from that offered in secondary schools. Problems of articulating college and secondary offerings in home economics will nevertheless demand adjustment by the colleges upon the basis of present offerings in both units. In this process the obligation rests most heavily upon the college.

28. The home economics staffs are attacking the problem of duplication of offerings with considerable energy by means of frequent revision of courses, observation of classes, conferences, and use of course outlines. Probably in part because of the tentative nature of home economics development, the home economics unit displays more interest in and use of these methods than is the case of the older and better established subject-matter fields.

29. Stimulating and constructive courses may best be developed by a determination and delimitation of objectives, by group review of course outlines, by the employment of carefully worked out bibliographies and other guides for reading, and by the use of carefully selected equipment. It is the relationships between library facilities, adequate equipment, and the extent to which these relationships are discovered and employed in service of objectives that will determine in large measure the strength or weakness of courses.

30. Home economics should contemplate reconstruction of its curricula in such fashion as to provide for two years of upper division work to which admission may be obtained simply and easily by general junior college preparation.

31. Although there is a tendency to start serious specialization at the beginning of the third year in college, graduate work is rapidly becoming something still more highly specialized and requiring content and method distinct from those of senior college courses. Home economics should prepare to direct its further development in harmony with these tendencies.

32. Graduate work in home economics, as is the case in other fields in land-grant colleges that do not have highly developed graduate schools, is too largely merely a continuation for a longer period of time of the same sort of work that is offered in the undergraduate years.

33. The increasing emphasis upon all forms of adult education and consequent development of methods and techniques appropriate to such instruction make it evident that home economics may well

give greater attention to courses designed for the special training of home economics extension workers.

34. It is earnestly recommended that home economics leaders consider the possibility of utilizing subject matter in the fields of health and sanitation to a much greater extent than at present as a means of accomplishing the objectives of home economics.

35. Home economics has not reached such a degree of common agreement concerning the major objectives of general home economics curricula as would seem to be indicated by the frequency with which homemaking and general culture are stated as objectives.

36. The undergraduate student who does not expect to enter a professional or technical field is the primary concern of those who would construct a general home economics curriculum on the college level. This curriculum should be definitely directed to this end. The purpose is large and its attainment will constitute an outstanding contribution to American education. Other purposes may well be set aside or delayed.

37. The assignment of objectives to home economics teacher-training curricula is almost as confused as the assignment of objectives to general home economics curricula. Curricula designed to prepare students to be teachers of home economics show a material difference from those in general home economics in only one significant respect—the number of hours of education required when the two curricula are compared institution by institution.

38. When definite technical objectives are ascribed to foods and nutrition curricula, other names would be more appropriate. The term food and nutrition curriculum has no common meaning or significance among the institutions that list such a curriculum.

39. The 17 institutions that offer a curriculum in textiles and clothing show the same confusion and vagueness of definition of objectives that are apparent in the foods and nutrition curriculum and probably for much the same fundamental cause, confusion of subject matter with purpose.

40. The range in number of semester hours in all fields of home economics subject matter in the extension curricula is sufficient demonstration that there is little agreement upon what is necessary to provide the technical home economics material demanded by an extension curriculum and that some institutions are offering so-called extension curricula that are well devised to excite the prevalent doubtful attitude that extension leaders take in regard to their effectiveness as actual preparation for extension work.

41. In the curricula in institutional management there is a notable absence of courses in mathematics or business administration which

would acquaint those preparing to follow the occupation of managing any institution with business methods, accounting, and similar fundamentals.

42. The curricula offered in applied art, home management, and family life, child care, and development represent no significant or specific contribution to the problem of adaptation of subject-matter material to attainment of specific and important objectives. They appear to represent still further the tendency to multiply the number and names of curricula without corresponding differentiation of content or purpose.

43. The most obvious superficial situation revealed by study of home economics courses and curricula is confusion of objectives, confusion of means adapted to the attainment of objectives, and confusion of lines of demarcation between subject-matter fields. The impression is created that home economics is bewildered by the wealth of possibilities, by the necessity of selecting from the multitudinous materials available those best suited for its purposes, by the variety of demands, and by the chasms of ignorance that must be bridged.

44. The tradition of the 4-year college course represents the background and environment in which the college curriculum in general home economics has developed. The problem of the general home economics curriculum becomes one, therefore, of determining which of four general policies it shall follow. Shall it adhere to the principle of the 4-year arts and science course in which interest is aroused by insetting courses of specific home economics character throughout the entire period? Shall it attempt to develop what may be called an isolated college of general home economics in which the basic core about and through which the abstract sciences and humanities are made to function upon the consciousness of its students is home interest? Or shall it accept the principle that home economics shall during the first two years complete the general education of its students by utilizing home economics subject matter to vitalize the elements of education that in their abstract form appeal less to women and to follow this general training by other specialized 2-year curricula looking to occupational or research preparation? Or shall it abandon any special emphasis upon home economics during the first two years, and, depending upon a type of general education designed to prepare during this period for almost any kind of specialization, undertake to set up distinct 2-year general, vocational, and research curricula in home economics upon the basis of these two years of general education? All these tendencies are evident in current educational development. The survey does not recommend any single one of these plans to general home economics for

adoption by all institutions. It does earnestly recommend that in harmony with the policy of the institution of which it is a part each home economics unit definitely select one of these four choices and reexamine its curricula, especially its general home economics curriculum, in accordance with the general theory and policy adopted.

45. The general home economics curriculum that contemplates a general college education especially designed for women is the basic function and service of home economics education. This implies, however, no belittling of more specific vocational functions which should be served through their own curricula. The need for vocational specialization in the fields in which women find employment is highly desirable.

46. From the strictly vocational standpoint many of these occupations do not require four years of college training in the specialty that is applicable. Many of the women who look forward to life employment in certain vocations may not profitably devote two years of junior college to general education as foundation for specialization. In these cases which can be determined only by careful personnel judgment of the student and by careful analysis of the contemplated occupation, the vocational preparation may well be given upon the lower division or junior college level. Curricula should be devised for this purpose.

47. On the other hand, several of the vocational curricula now dispersed through four years may well be concentrated into two years of senior college or upper division work based upon two years of general junior college training.

48. General home economics curricula and curricula designed to prepare for home economics vocations should be distinguished from those that contemplate preparation for research.

49. Research in the sociological and economic aspects of women's interests and especially in the problems of women's education should have as much earnest attention as research in the physical sciences; perhaps more emphasis should be given since the conventional investigations in the field of the social sciences is less directly applicable to home economics problems than is the case of research in physical sciences.

50. The undoubted values of the laboratory method have in other fields as well as in home economics led to overemphasis upon and substitution of routines and insignificant procedures for basic instructional values that may be acquired by this method. The entire matter of laboratory method and its place in teaching needs through reexamination in home economics as in other fields.

51. The individual conference method of instruction under which the student is largely thrown upon his own resources and in which

it is the function of the instructor to provide the student with guidance in methods of attack and procedure rather than with subject matter is used to a very limited extent in home economics instruction by the land-grant colleges.

52. It is highly desirable that home economics departments establish relationships with homemakers, commercial concerns, and other persons and agencies in order to work out a cooperative program which will include an opportunity for student practice under the guidance or supervision of persons capable of wise direction.

53. Seventy-eight per cent of all graduates of divisions of home economics among 39 land-grant institutions in 1927–28 completed work either in general home economics or teacher training. Such a large percentage shows clearly that these curricula may well be the first and major concern of the home economics units in the land-grant institutions.

54. Home economics should lead in establishing somewhat the same relationship with commercial firms that medicine, agriculture, and other fields of education have established for the purpose of working out standards for commodities in their fields. This is a gigantic undertaking. Home economics should exert a wide influence based on scientific investigation.

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